

# SEQUENCE LISTING



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Hart, Elizabeth A.

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tgcgccaac tatgcactct ttctggcgct ggagaaggtg cagcagctgg atcatccgga	660
ggctaccaag gtgtacaccg aacaattgct ggagctgcac cgtggacagg gcatggagat	720
ctattggcgc gacagcttca cgtgtccatc cgagtcggat tacaagctga tgactgtgcg	780
caaaactggc ggcctcttta tgctggccat tcgccttatg cagctgttca gctccaacaa	840
ggaggactat tcgaagttga cggctatatt gggcctgtac tttcagatac gcgacgacta	900
ttgcaatctg agtctgaaag agtacacgga gaacaagagc ttcgccgagg acttgacgga	960
gggcaagttc ggcttcccg taatccatgc ggcttcgacc caaaagcagg ataaacaggt	1020
tctacacata ttacgccagc gcacgcacga cattgaggtc aagaagtact gcatcacctt	1080

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gttgaaaaag ctgggcagct ttcagtatac acgcaagggt ctggagtcgc tcgacgcaga 1140
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gctgctgtcg tggaagacga gcgatagcgc cagcatcacg cagtcgaacc agatcaatca 1260
caacaacgtc tcacgcagca gcccacaacca gaacacgttc aattgcaatt agcagccaaa 1320
gaggcaaaaag agggagcagt cgtgaattgc gaacggcaga gcctcttttg ccgccaatcc 1380
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aa 2222

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<210> 22
<211> 335
<212> PRT
<213> Saccharomyces cerevisiae

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<400> 22
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Met Glu Ala Lys Ile Asp Glu Leu Ile Asn Asn Asp Pro Val Trp Ser
1           5           10           15

```

```

Ser Gln Asn Glu Ser Leu Ile Ser Lys Pro Tyr Asn His Ile Leu Leu
          20           25           30

```

```

Lys Pro Gly Lys Asn Phe Arg Leu Asn Leu Ile Val Gln Ile Asn Arg
          35           40           45

```

Val Met Asn Leu Pro Lys Asp Gln Leu Ala Ile Val Ser Gln Ile Val  
50 55 60

Glu Leu Leu His Asn Ser Ser Leu Leu Ile Asp Asp Ile Glu Asp Asn  
65 70 75 80

Ala Pro Leu Arg Arg Gly Gln Thr Thr Ser His Leu Ile Phe Gly Val  
85 90 95

Pro Ser Thr Ile Asn Thr Ala Asn Tyr Met Tyr Phe Arg Ala Met Gln  
100 105 110

Leu Val Ser Gln Leu Thr Thr Lys Glu Pro Leu Tyr His Asn Leu Ile  
115 120 125

Thr Ile Phe Asn Glu Glu Leu Ile Asn Leu His Arg Gly Gln Gly Leu  
130 135 140

Asp Ile Tyr Trp Arg Asp Phe Leu Pro Glu Ile Ile Pro Thr Gln Glu  
145 150 155 160

Met Tyr Leu Asn Met Val Met Asn Lys Thr Gly Gly Leu Phe Arg Leu  
165 170 175

Thr Leu Arg Leu Met Glu Ala Leu Ser Pro Ser Ser His His Gly His  
180 185 190

Ser Leu Val Pro Phe Ile Asn Leu Leu Gly Ile Ile Tyr Gln Ile Arg  
195 200 205

Asp Asp Tyr Leu Asn Leu Lys Asp Phe Gln Met Ser Ser Glu Lys Gly  
210 215 220

Phe Ala Glu Asp Ile Thr Glu Gly Lys Leu Ser Phe Pro Ile Val His  
225 230 235 240

Ala Leu Asn Phe Thr Lys Thr Lys Gly Gln Thr Glu Gln His Asn Glu  
245 250 255

Ile Leu Arg Ile Leu Leu Leu Arg Thr Ser Asp Lys Asp Ile Lys Leu  
260 265 270

Lys Leu Ile Gln Ile Leu Glu Phe Asp Thr Asn Ser Leu Ala Tyr Thr  
275 280 285

Lys Asn Phe Ile Asn Gln Leu Val Asn Met Ile Lys Asn Asp Asn Glu

290		295		300
Asn Lys Tyr Leu Pro Asp Leu Ala Ser His Ser Asp Thr Ala Thr Asn				
305		310		315 320
Leu His Asp Glu Leu Leu Tyr Ile Ile Asp His Leu Ser Glu Leu				
	325		330	335
<210> 23				
<211> 335				
<212> PRT				
<213> Drosophila melanogaster				
<400> 23				
Met Glu Glu Leu Asn Ile Ile Leu Gln Lys Thr Lys Asp Lys Ser Thr				
1	5		10	15
Gln Lys Glu Gln Asp Glu Ile Leu Leu Gln Pro Phe Thr Tyr Ile Gln				
	20		25	30
Gln Ile Pro Gly Lys Gln Phe Arg Ser Glu Leu Ala Leu Ala Phe Asn				
	35		40	45
His Trp Leu Leu Ile Pro Gly Glu Lys Leu Ala Gln Ile Gly Asn Ile				
	50		55	60
Val Gln Met Leu His Asn Ser Ser Leu Leu Ile Glu Asp Asn Ser Ile				
65		70		75 80
Leu Arg Arg Gly Val Pro Val Ala His Ser Ile Tyr Gly Val Ala Ser				
	85		90	95
Thr Ile Asn Ala Ala Asn Tyr Ala Leu Phe Leu Ala Leu Glu Lys Val				
	100		105	110
Gln Gln Leu Asp His Pro Glu Val Arg Lys Val Tyr Thr Glu Gln Leu				
	115		120	125
Leu Glu Leu His Arg Gly Gln Gly Met Glu Ile Tyr Trp Arg Asp Ser				
	130		135	140
Phe Thr Cys Pro Ser Glu Ser Asp Tyr Lys Leu Met Thr Val Arg Lys				
145		150		155 160
Thr Gly Gly Leu Phe Met Leu Ala Ile Arg Leu Met Gln Leu Phe Ser				
	165		170	175

Ser Asn Lys Glu Asp Tyr Ser Lys Leu Thr Ala Ile Leu Gly Leu Tyr  
180 185 190

Phe Gln Ile Arg Asp Asp Tyr Cys Asn Leu Ser Leu Lys Glu Val Ser  
195 200 205

Val Asn Lys Ser Phe Ala Glu Asp Leu Thr Glu Gly Lys Phe Gly Phe  
210 215 220

Pro Val Ile His Ala Val Arg Thr Gln Lys Gln Asp Lys Gln Val Leu  
225 230 235 240

Arg Lys Ser Ser Gln Arg Thr His Asp Ile Glu Val Lys Lys Tyr Cys  
245 250 255

Ile Thr Leu Leu Glu Lys Leu Gly Ser Phe Gln Tyr Thr Arg Lys Val  
260 265 270

Leu Glu Ser Leu Asp Ala Glu Ala Arg Ser Glu Val Ser Thr Leu Gly  
275 280 285

Ser Asn Pro Tyr Met Asp Arg Leu Leu Asn Lys Leu Leu Ser Trp Lys  
290 295 300

Thr Ser Asp Ser Ala Ser Ile Thr Gln Ser Asn Gln Ile Asn His Asn  
305 310 315 320

Asn Val Ser Arg Ser Ser Pro Asn Gln Asn Thr Phe Asn Cys Asn  
325 330 335

<210> 24  
<211> 338  
<212> PRT  
<213> Drosophila melanogaster

<400> 24

Met Glu Glu Leu Asn Ile Ile Leu Gln Lys Thr Lys Asp Lys Ser Thr  
1 5 10 15

Gln Lys Glu Gln Asp Glu Ile Leu Leu Gln Pro Phe Thr Tyr Ile Gln  
20 25 30

Gln Ile Pro Gly Lys Gln Phe Arg Ser Glu Leu Ala Leu Ala Phe Asn  
35 40 45

His Trp Leu Leu Ile Pro Gly Glu Lys Leu Ala Gln Ile Gly Asp Ile



50		55		60											
Val 65	Gln	Met	Leu	His	Asn 70	Ser	Ser	Leu	Leu	Ile 75	Asp	Asp	Ile	Glu	Asp 80
Asn	Ser	Ile	Leu	Arg 85	Arg	Gly	Val	Pro	Val 90	Ala	His	Ser	Ile	Tyr 95	Gly
Val	Ala	Ser	Thr 100	Ile	Asn	Ala	Ala	Asn 105	Tyr	Ala	Leu	Phe	Leu	Ala 110	Leu
Glu	Lys	Val 115	Gln	Gln	Leu	Asp	His 120	Pro	Glu	Ala	Thr	Lys 125	Val	Tyr	Thr
Glu	Gln	Leu	Leu	Glu	Leu	His 135	Arg	Gly	Gln	Gly	Met 140	Glu	Ile	Tyr	Trp
Arg 145	Asp	Ser	Phe	Thr	Cys 150	Pro	Ser	Glu	Ser	Asp 155	Tyr	Lys	Leu	Met	Thr 160
Val	Arg	Lys	Thr	Gly 165	Gly	Leu	Phe	Met	Leu 170	Ala	Ile	Arg	Leu	Met	Gln 175
Leu	Phe	Ser	Ser 180	Asn	Lys	Glu	Asp	Tyr 185	Ser	Lys	Leu	Thr	Ala	Ile	Leu 190
Gly	Leu	Tyr 195	Phe	Gln	Ile	Arg	Asp 200	Asp	Tyr	Cys	Asn	Leu	Ser	Leu	Lys 205
Glu	Tyr 210	Thr	Glu	Asn	Lys	Ser 215	Phe	Ala	Glu	Asp	Leu	Thr	Glu	Gly	Lys 220
Phe 225	Gly	Phe	Pro	Val	Ile 230	His	Ala	Val	Arg	Thr 235	Gln	Lys	Gln	Asp	Lys 240
Gln	Val	Leu	His	Ile 245	Leu	Arg	Gln	Arg	Thr 250	His	Asp	Ile	Glu	Val	Lys 255
Lys	Tyr	Cys	Ile 260	Thr	Leu	Leu	Glu	Lys 265	Leu	Gly	Ser	Phe	Gln	Tyr	Thr 270
Arg	Lys	Val 275	Leu	Glu	Ser	Leu	Asp 280	Ala	Glu	Ala	Arg	Ser	Glu	Val	Ala 285
Arg	Leu 290	Gly	Ser	Asn	Pro	Tyr 295	Met	Asp	Arg	Leu	Leu	Asn	Lys	Leu	Leu 300

Ser Trp Lys Thr Ser Asp Ser Ala Ser Ile Thr Gln Ser Asn Gln Ile  
 305 310 315 320

Asn His Asn Asn Val Ser Arg Ser Ser Pro Asn Gln Asn Thr Phe Asn  
 325 330 335

Cys Asn

<210> 25  
 <211> 300  
 <212> PRT  
 <213> Cyanophora paradoxa

<400> 25

Met Lys Pro Leu Gln Thr Asn Phe Asn Leu Leu Thr Tyr Leu Tyr Glu  
 1 5 10 15

Arg Lys Glu Ile Val Glu Asp Thr Leu Asn Lys Ser Ile Pro Arg Gly  
 20 25 30

Asn Pro Thr Phe Ile Tyr Asp Ser Ile Arg Tyr Ser Leu Ser Ala Gly  
 35 40 45

Gly Lys Arg Ile Arg Pro Ile Leu Cys Leu Ala Ser Cys Glu Leu Ala  
 50 55 60

Gly Gly Thr Met Glu Met Ala Leu Pro Thr Ala Cys Ala Leu Glu Met  
 65 70 75 80

Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Ala Met Asp Asn  
 85 90 95

Asp Ser Tyr Arg Arg Gly Lys Pro Thr Asn His Ile Ile Tyr Gly Glu  
 100 105 110

Asp Leu Ala Ile Leu Ala Gly Asp Ala Leu Leu Ala Tyr Ala Phe Glu  
 115 120 125

Phe Ile Ala Thr Gln Thr Lys Asn Val Pro Ala Asp Leu Ile Val Lys  
 130 135 140

Val Ile Ala Gln Val Ala His Ser Val Thr Thr Ser Gly Leu Val Gly  
 145 150 155 160

Gly Gln Ile Ile Asp Leu Ser Ser Glu Gly Lys Ser Asp Thr Thr Leu  
165 170 175

Glu Thr Leu Asn Phe Ile His Ile His Lys Thr Gly Ala Leu Leu Glu  
180 185 190

Ala Ala Val Leu Ser Gly Ala Leu Leu Ala Gly Ala Lys Glu Lys Asp  
195 200 205

Met Asn Arg Phe Leu Arg Tyr Ala Gln Asn Ile Gly Leu Ala Phe Gln  
210 215 220

Ile Ile Asp Asp Val Leu Asp Ile Ile Ser Thr Glu Glu Lys Leu Gly  
225 230 235 240

Lys Ser Ile Gly Lys Asp Leu Lys Thr Gln Lys Ala Thr Tyr Pro Ser  
245 250 255

Phe Trp Gly Val Glu Glu Ser Ile Lys Gln Ala Glu Leu Leu Val Glu  
260 265 270

Glu Ala Lys Glu Glu Ile Leu Tyr Phe Asp Asn Lys Ala Ile Pro Leu  
275 280 285

Ile Ala Ile Ala Asp Phe Ile Val Asn Arg Asn Asn  
290 295 300

<210> 26  
<211> 376  
<212> PRT  
<213> Oryza sativa

<400> 26

Met His Val Leu Ala Gln Ser Thr Ala Val Ala Lys Val Ala Ala Ser  
1 5 10 15

Gly Cys Leu Arg Arg Ser Pro Asn Pro Ser Val Thr Phe Gln Arg Ser  
20 25 30

Pro Ser Leu Leu Leu Ser Pro Ala Ala Cys Arg Arg Arg Cys Arg Arg  
35 40 45

Gly Cys Ser Val Ser Val Asp Val Arg Cys Ser Leu Gly Ala Met Val  
50 55 60

Thr Pro Glu Leu Asn Gly Gly Asp Val Gly Val Gly Val Gly Gly Gly  
65 70 75 80

Ser Phe Asp Phe Gln Arg Tyr Leu Ser Ala Arg Ala Asp Ala Val His  
 85 90 95

Asp Ala Leu Asp Arg Ala Met Pro Arg Gly Phe Pro Glu Arg Leu Cys  
 100 105 110

Glu Ser Met Arg Tyr Ser Val Leu Ala Gly Gly Lys Arg Val Arg Pro  
 115 120 125

Val Leu Ala Leu Ala Ala Cys Glu Leu Val Gly Gly Asp Ala Ala Ala  
 130 135 140

Ala Thr Pro Val Ala Cys Ala Val Glu Met Ile His Thr Met Ser Leu  
 145 150 155 160

Ile His Asp Asp Met Pro Cys Met Asp Asp Asp Ala Leu Arg Arg Gly  
 165 170 175

Arg Pro Ser Asn His Val Ala Phe Gly Glu Phe Thr Ala Leu Leu Ala  
 180 185 190

Gly Asp Ala Leu His Ala Leu Ala Phe Glu His Val Ala Arg Gly Cys  
 195 200 205

Gly Asp His Gly Val Pro Ala Asp Arg Thr Leu Arg Ala Val Ala Glu  
 210 215 220

Leu Gly Ser Ala Ser Gly Thr Gly Gly Val Ala Ala Gly Gln Val Ala  
 225 230 235 240

Asp Lys Glu Ser Glu Gly Leu Pro Val Ser Leu Ala Met Leu Glu Tyr  
 245 250 255

Ile His Val His Lys Thr Ala Arg Leu Leu Glu Ala Ala Ala Val Ser  
 260 265 270

Gly Ala Ile Val Gly Gly Gly Ala Asp Ala Glu Val Glu Arg Val Arg  
 275 280 285

Arg Tyr Ala Arg Cys Val Gly Leu Leu Phe Gln Val Val Asp Asp Val  
 290 295 300

Leu Asp Met Thr Ser Thr Ser Glu Gln Leu Gly Lys Thr Ala Gly Lys  
 305 310 315 320

Asp Val Glu Ala Asp Lys Ala Thr Tyr Pro Lys Leu Leu Gly Val Asp  
 325 330 335

Lys Ala Arg Glu Tyr Ala Ala Asp Leu Leu Ala Met Ala Glu Ala Glu  
 340 345 350

Leu Asp Gly Phe Asp Ala Glu Arg Ala Ala Pro Leu Arg His Leu Ala  
 355 360 365

Arg Phe Ile Ala Tyr Arg Gln His  
 370 375

<210> 27  
 <211> 291  
 <212> PRT  
 <213> Chlamydia trachomatis

<400> 27

Met Asp Tyr Phe Ser Val Tyr Arg Ser Lys Val Glu Lys Lys Leu Arg  
 1 5 10 15

Asp Ser Leu Gly Asp Phe Gly Asn Thr Gln Gly Gly Leu Arg Asp Pro  
 20 25 30

Ile Glu Tyr Ala Leu Leu Gly Gly Gly Lys Arg Val Arg Pro Leu Leu  
 35 40 45

Val Gly Leu Phe Ala Glu Gly Val His Lys Glu Arg Asp Val Leu Asp  
 50 55 60

Thr Ala Ile Ala Ile Glu Tyr Ile His Thr Ser Thr Leu Ile Ala Asp  
 65 70 75 80

Asp Leu Pro Cys Met Asp Asp Asp Asp Met Arg Arg Gly Lys Pro Ser  
 85 90 95

Val His Lys Ala Phe Asp Glu Ala Ser Ala Leu Leu Ala Ser Tyr Ala  
 100 105 110

Leu Ile Pro Ala Ala Tyr Ala Arg Ile Arg Lys Asn Ala Lys Ala Leu  
 115 120 125

Lys Ala Val Val Ser Cys Glu Gln Asp Val Glu Glu Ala Tyr Glu Asp  
 130 135 140

Ile Leu Glu Leu Ile Glu Leu Arg Phe Gly Val Gly Gly Ile Leu Gly

145		150		155		160									
Gly	Gln	Tyr	Glu	Asp	Ile	Phe	Phe	His	Asp	Phe	Ser	Lys	Glu	Asn	Val
				165					170					175	
Leu	Gly	Ile	Ile	Lys	Lys	Lys	Thr	Gly	Ala	Leu	Phe	Glu	Ile	Ala	Cys
			180					185					190		
Val	Ser	Gly	Trp	Leu	Phe	Gly	Gly	Gly	Glu	Arg	Glu	Ser	Ser	Thr	Leu
		195					200					205			
Val	Ala	Glu	Phe	Ala	Glu	His	Phe	Gly	Leu	Leu	Phe	Gln	Ile	Arg	Asp
	210					215					220				
Asp	Leu	Ala	Asp	Leu	Ser	Gln	Asp	Asp	Gln	Glu	Glu	Lys	His	Met	Asn
225					230					235					240
Tyr	Ala	Leu	Leu	Phe	Gly	Glu	Val	Ala	Ala	Lys	Glu	Leu	Leu	Asp	His
				245					250					255	
Ser	Phe	Glu	Ser	Cys	Ile	Lys	Asn	Leu	His	Leu	Leu	Gln	Glu	Arg	Gly
			260					265					270		
Leu	Glu	Cys	Leu	Glu	Pro	Leu	Glu	Met	Leu	Cys	Lys	Asn	Val	Phe	Cys
		275					280					285			

Gly Trp Lys  
290

<210> 28  
 <211> 354  
 <212> PRT  
 <213> Thermoplasma acidophilum

<400> 28

Met	Gln	Ile	Glu	Thr	Glu	Asp	Pro	His	Glu	Thr	Ile	Asn	Asn	Tyr	Lys
1				5					10					15	
Leu	Arg	Ile	Asp	Glu	Arg	Ile	Ser	Arg	Phe	Phe	Asp	Arg	Lys	Glu	Ala
			20					25					30		
Glu	Thr	Lys	Asp	Asp	Leu	Ser	Arg	Arg	Val	Ile	Arg	Met	Ile	Arg	Glu
		35					40					45			
Tyr	Thr	Glu	Gly	Gly	Gly	Lys	Arg	Leu	Arg	Pro	Ile	Phe	Leu	Val	Leu
	50					55					60				

Gly Tyr Arg Leu Phe Ala Asp Glu Asn Asn Ala Ile Phe Asp Ala Ser  
65 70 75 80

Ile Ser Ile Glu Leu Ala Gln Ser Tyr Leu Leu Ile His Asp Asp Val  
85 90 95

Ile Asp Asp Ser Asp Leu Arg Arg Gly Lys Pro Ser Met His Ile Arg  
100 105 110

Leu Trp Arg Ser Phe Phe Pro Glu Ser Glu Lys Gly Lys Lys Met Gly  
115 120 125

Glu Gly Leu Ala Ile Val Ala Gly Asp Leu Ala Glu Thr Tyr Ala His  
130 135 140

Glu Ser Leu Ile Asn Ser Asp Phe Asp Pro Ser Leu Leu Leu Leu Ala  
145 150 155 160

Asp Met Glu Leu Thr Lys Thr Ile Glu Met Thr Gly Tyr Gly Gln Phe  
165 170 175

Leu Asp Val Val Ser Gly Thr Leu Asn Asp Phe Arg Glu Asn Asp Leu  
180 185 190

Ile Arg Leu His Leu Trp Lys Thr Ala Arg Tyr Thr Leu Glu Gly Pro  
195 200 205

Leu Ala Met Gly Ala Leu Leu Ser Gly Arg His Asp Gln Ile Met Asp  
210 215 220

Leu Arg Leu Phe Gly Arg Thr Leu Gly Ile Ala Phe Gln Leu Lys Asp  
225 230 235 240

Asp Ile Leu Gly Leu Phe Gly Asp Glu Ala Thr Thr Gly Lys Ser Ile  
245 250 255

Tyr Ser Asp Val Asn Glu Gly Lys Arg Thr Leu Leu Met Ile Lys Ala  
260 265 270

Met Glu Phe Ser Asp Arg Gln Asp Ala Glu Phe Ile Asp Arg Ile Leu  
275 280 285

Arg Arg Gly Asn Val Thr Gln Glu Glu Phe Glu Arg Ile Arg Asn Ile  
290 295 300

Val Met Lys Ser Gly Ser Tyr Asp Tyr Ser Val Lys Leu Met Asp Ser  
 305 310 315 320

Leu Val Ala Lys Ser Lys Glu Tyr Leu Asn Arg Ile Arg Gly Asn Ser  
 325 330 335

Cys Ala Lys Thr Tyr Leu Ser Trp Leu Ser Asp Tyr Leu Val Ala Arg  
 340 345 350

Asp His

<210> 29  
 <211> 360  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 29

Met Ala Thr Thr Val His Leu Ser Ser Ser Ser Leu Phe Ser Gln Ser  
 1 5 10 15

Arg Gly Arg Arg Asp Asn Ser Ile Ser Ser Val Lys Ser Leu Arg Lys  
 20 25 30

Arg Thr Val Leu Ser Leu Ser Ser Ala Leu Thr Ser Gln Asp Ala Gly  
 35 40 45

His Met Ile Gln Pro Glu Gly Lys Ser Asn Asp Asn Asn Ser Ala Phe  
 50 55 60

Asp Phe Lys Leu Tyr Met Ile Arg Lys Ala Glu Ser Val Asn Ala Ala  
 65 70 75 80

Leu Asp Val Ser Val Pro Leu Leu Lys Pro Leu Thr Ile Gln Glu Ala  
 85 90 95

Val Arg Tyr Ser Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Leu Leu  
 100 105 110

Cys Ile Ala Ala Cys Glu Leu Val Gly Gly Asp Glu Ala Thr Ala Met  
 115 120 125

Ser Ala Ala Cys Ala Val Glu Met Ile His Thr Ser Ser Leu Ile His  
 130 135 140

Asp Asp Leu Pro Cys Met Asp Asn Ala Asp Leu Arg Arg Gly Lys Pro  
 145 150 155 160



Thr Asn His Lys Val Tyr Gly Glu Asp Met Ala Val Leu Ala Gly Asp  
165 170 175

Ala Leu Leu Ala Leu Ala Phe Glu His Met Thr Val Val Ser Ser Gly  
180 185 190

Leu Val Ala Pro Glu Lys Met Ile Arg Ala Val Val Glu Leu Ala Arg  
195 200 205

Ala Ile Gly Thr Thr Gly Leu Val Ala Gly Gln Met Ile Asp Leu Ala  
210 215 220

Ser Glu Arg Leu Asn Pro Asp Lys Val Gly Leu Glu His Leu Glu Phe  
225 230 235 240

Ile His Leu His Lys Thr Ala Ala Leu Leu Glu Ala Ala Ala Val Leu  
245 250 255

Gly Val Ile Met Gly Gly Gly Thr Glu Gln Glu Ile Glu Lys Leu Arg  
260 265 270

Lys Tyr Ala Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile  
275 280 285

Leu Asp Val Thr Lys Ser Thr Glu Glu Leu Gly Lys Thr Ala Gly Lys  
290 295 300

Asp Val Met Ala Gly Lys Leu Thr Tyr Pro Arg Leu Ile Gly Leu Glu  
305 310 315 320

Gly Ser Arg Glu Val Ala Glu Lys Leu Arg Arg Glu Ala Glu Glu Gln  
325 330 335

Leu Leu Gly Phe Asp Pro Ser Lys Ala Ala Pro Leu Val Ala Leu Ala  
340 345 350

Ser Tyr Ile Ala Cys Arg His Asn  
355 360

<210> 30  
<211> 371  
<212> PRT  
<213> Mycobacterium aurum

<400> 30

Met Ala Ser Arg Ser Gln Val Ala Thr Asp Pro Pro Val Gly Ala Gly  
 1 5 10 15  
 Pro Thr Ala Thr Arg Trp Leu Ala Pro Leu Arg Arg Ala Val Leu Gly  
 20 25 30  
 Ala Val Thr Glu Phe Leu Asp Thr His Cys Arg Glu Ala Leu Tyr Gly  
 35 40 45  
 Ala His Val Asp Ile Thr Glu Leu Val Leu Arg Gly Met Leu Ala Glu  
 50 55 60  
 Gly Lys Cys Val Arg Ser Thr Tyr Leu Tyr Leu Gly Trp Gln Cys Gly  
 65 70 75 80  
 Ala Pro Ala Asp Glu Ala Ala Leu Arg Ala Ala Ala Ser Leu Glu Leu  
 85 90 95  
 Leu His Ala Phe Ala Leu Leu Gln Asp Asp Val Met Asp Glu Ser Pro  
 100 105 110  
 Met Arg Arg Gly Arg Pro Ser Ala His Arg Ala Phe Glu Arg Trp His  
 115 120 125  
 Arg Glu Arg Gly Leu Pro Gly Ser Ser Ala Arg Phe Gly Glu Ser Ala  
 130 135 140  
 Ala Val Leu Leu Gly Asp Leu Cys Leu Val Trp Ala Glu Gln Met Leu  
 145 150 155 160  
 Arg Glu Ser Gly Val Asp Glu Ala Ala Leu Thr Arg Ala Trp Pro Arg  
 165 170 175  
 Tyr Asp Ala Met Arg Thr Glu Leu Ala Val Gly Gln Phe Ala Asp Leu  
 180 185 190  
 Val Asn Asp Thr Ala Gly Phe Pro Gln Leu Asp Glu Val Leu Asp Val  
 195 200 205  
 Ala Arg Arg Lys Ser Gly Asn Tyr Thr Val Arg Arg Pro Leu Glu Ile  
 210 215 220  
 Gly Ala Ala Leu Ala Gly Cys Asp Ala Glu Val Ile Thr Val Leu Gly  
 225 230 235 240  
 Arg Tyr Gly Glu Ala Ile Gly Glu Ala Phe Gln Leu Arg Asp Asp Leu

	245		250		255
Leu Gly Val	Phe Gly Ala	Pro Gln Thr	Thr Gly Lys	Pro Thr Gly	Thr
	260		265		270
Asp Leu Val	Ala Arg Lys	Ala Thr Thr	Val Val Val	Ala Gly Tyr	Glu
	275		280		285
Leu Ala Thr	Gly Ala Gln	Gln Arg Gln	Phe Lys Glu	Phe Met Thr	Ala
	290		295		300
Pro Glu Leu	Ser Ser Gly	Asp Val Thr	Arg Trp Gln	Ala Leu Ile	Ser
305		310		315	320
Glu Val Gly	Thr Val Gln	Arg Ile Glu	Asp Met Ile	His Arg Arg	Phe
	325		330		335
Ala Val Ala	Val Gln Ala	Leu Asp Ser	Leu Asp Ala	Thr Arg Leu	Asp
	340		345		350
Ala Asp Ala	Arg Ser Ala	Leu Val Ala	Met Ala Ser	Ala Cys Thr	Glu
	355		360		365
Arg Ile Ala					
	370				

<210> 31  
 <211> 229  
 <212> PRT  
 <213> Chlamydophila pneumoniae  
 <400> 31

His Asp Val	Met Asp Ser	Ala Leu Ala	Val Glu Phe	Val His Thr	Ser
1	5		10		15
Thr Leu Ile	Ala Asp Asp	Leu Pro Cys	Met Asp Asn	Asp Asp Glu	Arg
	20		25		30
Arg Gly Arg	Pro Thr Val	His Lys Ala	Phe Asp Glu	Ala Thr Ala	Leu
	35		40		45
Leu Ala Ser	Tyr Ala Leu	Ile Pro Ala	Ala Tyr Ser	His Leu Arg	Leu
	50		55		60
Asn Ala Lys	Lys Leu Lys	Glu Gln Gly	Cys Asp Pro	Arg Glu Ile	Asp
65		70		75	80

Ile Ala Tyr Asn Ile Ile Gly Asp Ile Thr Asp Lys Asn Ile Gly Cys  
85 90 95

Ser Gly Val Leu Gly Gly Gln Tyr Asp Asp Met Phe Phe Ser Asn Arg  
100 105 110

Gly Gln Glu His Val Gln Ser Ile Met Ile Lys Lys Thr Gly Ser Leu  
115 120 125

Phe Glu Ile Ala Cys Ile Ser Gly Trp Leu Phe Gly Gly Gly Asp Pro  
130 135 140

Gln Phe Ala Pro Ile Ile Thr Ser Phe Ser Asn Asn Phe Gly Leu Leu  
145 150 155 160

Phe Gln Ile Lys Asp Asp Phe Ser Asp Leu Gln Lys Asp Ser Gln Gln  
165 170 175

Ile Gly Leu Asn Tyr Ala Leu Leu Phe Gly Glu Lys Ala Ala Leu Glu  
180 185 190

Leu Leu Ala Arg Ser Gln Asn Asn Cys Leu Glu Leu Leu Asp Arg Leu  
195 200 205

Ser Ala Gly Gly Leu Lys Asn Ser Ser Glu Phe Glu Thr Ile Ile Ser  
210 215 220

Ser Leu Gly Ser Phe  
225

<210> 32  
<211> 343  
<212> PRT  
<213> Arabidopsis thaliana

<400> 32

Met Leu Cys Lys Ile Ile Ile Met Arg Pro Cys Tyr Ser Leu Val Leu  
1 5 10 15

Ser Ala Met Arg Leu Ile Arg Pro Ser Asn Arg Arg Leu Ser Ser Ile  
20 25 30

Ala Ser Ser Asp Ser Glu Phe Ile Ser Tyr Met Asn Asn Lys Ala Lys  
35 40 45

Ser Ile Asn Lys Ala Leu Asp Asn Ser Ile Pro Leu Cys Asn Asn Ser

50					55					60					
Val	Pro	Leu	Trp	Glu	Pro	Val	Leu	Glu	Val	His	Lys	Ala	Met	Arg	Tyr
65					70					75					80
Thr	Leu	Leu	Ser	Gly	Gly	Lys	Arg	Val	Arg	Pro	Met	Leu	Cys	Leu	Val
				85					90					95	
Ala	Cys	Glu	Leu	Val	Gly	Gly	Gln	Glu	Ser	Thr	Ala	Met	Pro	Ala	Ala
			100					105					110		
Cys	Ala	Val	Glu	Met	Ile	His	Ala	Ala	Ser	Leu	Ile	Leu	Asp	Asp	Leu
		115					120					125			
Pro	Cys	Met	Asp	Asp	Asp	Ser	Leu	Arg	Arg	Gly	Ile	Pro	Thr	Asn	His
		130				135					140				
Lys	Val	Phe	Gly	Glu	Lys	Thr	Ser	Ile	Leu	Ala	Ser	Asn	Ala	Leu	Met
145						150					155				160
Ser	Leu	Ala	Val	Lys	Gln	Thr	Leu	Ala	Ser	Thr	Ser	Leu	Gly	Val	Thr
				165					170					175	
Ser	Glu	Arg	Val	Leu	Arg	Ala	Val	Gln	Glu	Met	Ala	Arg	Ala	Val	Gly
			180					185					190		
Thr	Glu	Gly	Leu	Val	Ala	Gly	Gln	Ala	Ala	Asp	Leu	Ala	Gly	Glu	Arg
		195					200					205			
Met	Ser	Phe	Lys	Asn	Glu	Asp	Asp	Glu	Leu	Arg	Tyr	Leu	Glu	Leu	Met
		210				215					220				
His	Val	His	Lys	Thr	Ala	Val	Leu	Val	Glu	Ala	Ala	Ala	Val	Val	Gly
225					230					235					240
Ala	Ile	Met	Gly	Gly	Gly	Ser	Asp	Glu	Glu	Ile	Glu	Arg	Leu	Lys	Ser
			245						250					255	
Tyr	Ala	Arg	Cys	Val	Gly	Leu	Met	Phe	Gln	Val	Met	Asp	Asp	Val	Leu
			260					265					270		
Asp	Glu	Thr	Lys	Ser	Ser	Glu	Glu	Leu	Gly	Lys	Thr	Ala	Gly	Lys	Asp
			275				280					285			
Leu	Ile	Thr	Gly	Lys	Leu	Thr	Tyr	Pro	Lys	Val	Met	Gly	Val	Asp	Asn
		290				295					300				

Ala Arg Glu Tyr Ala Lys Arg Leu Asn Arg Glu Ala Gln Glu His Leu  
 305 310 315 320

Gln Gly Phe Asp Ser Asp Lys Val Val Pro Leu Leu Ser Leu Ala Asp  
 325 330 335

Tyr Ile Val Lys Arg Gln Asn  
 340

<210> 33  
 <211> 373  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 33

Gln Ile Leu Phe Leu Tyr Leu Ser Leu Phe Ile Leu Ser Leu Asn Phe  
 1 5 10 15

Phe Phe Thr Asn Leu Lys Pro Arg Leu Val Arg Leu Phe Gln Pro Ser  
 20 25 30

Leu Glu Ser Arg Val Lys Thr Ala Leu Leu Ser Arg Lys Glu Val Ala  
 35 40 45

Ala Phe Leu Asp Ser Pro Ile Val Glu Asp Glu Glu Gly Glu Glu Arg  
 50 55 60

Glu Glu Glu Glu Glu Gly Gly Ile Val Ser Asn Ala Asn Phe Thr Phe  
 65 70 75 80

Glu Phe Asp Pro Tyr Met Met Ser Lys Ala Glu Ser Val Asn Lys Ala  
 85 90 95

Leu Glu Glu Ala Ile Pro Val Gly Glu Pro Leu Lys Ile His Glu Ala  
 100 105 110

Met Arg Tyr Ala Ile Leu Ala Ala Gly Lys Arg Val Arg Pro Ile Leu  
 115 120 125

Cys Leu Ala Ser Cys Glu Leu Val Gly Gly Gln Glu Asn Ala Ala Met  
 130 135 140

Pro Ala Ala Cys Ala Val Glu Met Ile His Thr Met Ser Leu Ile Lys  
 145 150 155 160

Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro  
165 170 175

Thr Thr His Lys Val Tyr Gly Glu Gly Val Ala Ile Leu Ser Gly Gly  
180 185 190

Ala Leu Leu Ser Leu Ala Phe Glu His Met Thr Thr Ala Glu Ile Ser  
195 200 205

Ser Glu Arg Met Val Trp Ala Val Arg Glu Leu Ala Arg Ser Ile Gly  
210 215 220

Thr Arg Gly Leu Val Ala Gly Gln Ala Met Asp Ile Ser Ser Glu Gly  
225 230 235 240

Leu Asp Leu Asn Glu Val Gly Leu Glu His Leu Glu Phe Ile His Val  
245 250 255

His Lys Thr Ala Val Leu Leu Glu Thr Ala Ala Val Leu Gly Ala Ile  
260 265 270

Ile Gly Gly Gly Ser Asp Glu Glu Ile Glu Ser Val Arg Lys Phe Ala  
275 280 285

Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Glu  
290 295 300

Thr Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly Lys Asp Gln Leu  
305 310 315 320

Ala Gly Lys Leu Thr Tyr Pro Lys Leu Ile Gly Leu Glu Lys Ser Lys  
325 330 335

Glu Phe Val Lys Arg Leu Thr Lys Asp Ala Arg Gln His Leu Gln Gly  
340 345 350

Phe Ser Ser Glu Lys Val Ala Pro Leu Val Ala Leu Thr Thr Phe Ile  
355 360 365

Ala Asn Arg Asn Lys  
370

<210> 34  
<211> 303  
<212> PRT  
<213> Mucor circinelloides f. lusitanicus

<400> 34

Met Leu Asn Ser His Asn Arg Thr Glu Glu Arg Ser Thr Glu Asp Ile  
1 5 10 15

Ile Leu Glu Pro Tyr Thr Tyr Leu Ile Ser Gln Pro Gly Lys Asp Ile  
20 25 30

Arg Ala Lys Leu Ile Ser Ala Phe Asp Leu Trp Leu His Val Pro Lys  
35 40 45

Asp Val Leu Cys Val Ile Asn Lys Ile Ile Gly Met Leu His Asn Ala  
50 55 60

Ser Leu Met Ile Asp Asp Val Gln Asp Asp Ser Asp Leu Arg Arg Gly  
65 70 75 80

Val Pro Val Ala His His Ile Tyr Gly Val Pro Gln Thr Ile Asn Thr  
85 90 95

Ala Asn Tyr Val Ile Phe Leu Ala Leu Gln Glu Val Met Lys Leu Asn  
100 105 110

Ile Pro Ser Met Met Gln Val Cys Thr Glu Glu Leu Ile Asn Leu His  
115 120 125

Arg Gly Gln Gly Ile Glu Leu Tyr Trp Arg Asp Ser Leu Thr Cys Pro  
130 135 140

Thr Glu Glu Glu Tyr Ile Asp Met Val Asn Asn Lys Thr Ser Gly Leu  
145 150 155 160

Leu Arg Leu Ala Val Arg Leu Met Gln Ala Ala Ser Glu Ser Asp Ile  
165 170 175

Asp Tyr Thr Pro Leu Val Asn Ile Ile Gly Ile His Phe Gln Val Arg  
180 185 190

Asp Asp Tyr Met Asn Leu Gln Ser Thr Ser Tyr Thr Asn Asn Lys Gly  
195 200 205

Phe Cys Glu Asp Leu Thr Glu Gly Lys Phe Ser Phe Pro Ile Ile His  
210 215 220

Ala Ile Arg Lys Asp Pro Ser Asn Arg Gln Leu Leu Asn Ile Ile Ser  
225 230 235 240



Gln Lys Pro Thr Ser Ile Glu Val Lys Lys Tyr Ala Leu Glu Val Ile  
245 250 255

Arg Lys Ala Gly Ser Phe Glu Tyr Val Arg Glu Phe Leu Arg Gln Lys  
260 265 270

Glu Ala Glu Ser Leu Lys Glu Ile Lys Arg Leu Gly Gly Asn Pro Leu  
275 280 285

Leu Glu Lys Tyr Ile Glu Thr Ile Arg Val Glu Ala Thr Asn Asp  
290 295 300

<210> 35  
<211> 347  
<212> PRT  
<213> Arabidopsis thaliana

<400> 35

Met Thr Thr Leu Asn Leu Ser Ile Phe Pro Ser Val Lys Ile Ser Ser  
1 5 10 15

Ser Ala Ser Ile Pro Gly Phe Ile Lys Ile Gln Pro Phe Leu Leu Arg  
20 25 30

Arg Lys Leu Ser Thr Val Leu Ser Val Thr Ala Arg Asp Glu Gly Ile  
35 40 45

Ile His Asn His Phe Asp Phe Thr Ser Tyr Met Ile Gly Lys Ala Asn  
50 55 60

Ala Val Asn Glu Ala Leu Asp Ser Ala Val Ser Leu Arg Glu Pro Ile  
65 70 75 80

Lys Ile His Glu Ala Ile Arg Tyr Ser Leu Leu Ala Arg Gly Lys Arg  
85 90 95

Val Arg Pro Val Leu Cys Ile Ala Ala Cys Glu Leu Val Gly Gly Glu  
100 105 110

Glu Ser Val Ala Leu Pro Ala Ala Cys Ala Val Glu Met Ile His Thr  
115 120 125

Met Ser Leu Ile His Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Leu  
130 135 140

Arg Arg Gly Lys Pro Thr Asn His Lys Val Phe Gly Glu Asp Val Ala

145		150		155		160									
Val	Leu	Ala	Gly	Asp	Ala	Leu	Ile	Ser	Phe	Ala	Phe	Glu	His	Leu	Ala
			165						170					175	
Thr	Ser	Thr	Ala	Val	Ser	Pro	Ala	Arg	Val	Val	Arg	Ala	Ile	Gly	Glu
			180					185					190		
Leu	Ala	Lys	Ala	Ile	Gly	Ser	Lys	Gly	Leu	Val	Ala	Gly	Gln	Val	Val
		195					200					205			
Asp	Leu	Thr	Ser	Gly	Gly	Met	Asp	Gln	Asn	Asp	Val	Gly	Leu	Glu	Val
	210					215					220				
Leu	Glu	Phe	Ile	His	Val	His	Lys	Thr	Ala	Val	Leu	Leu	Glu	Ala	Ala
225					230					235					240
Thr	Val	Leu	Gly	Ala	Ile	Val	Gly	Gly	Gly	Ser	Asp	Glu	Glu	Val	Glu
				245					250					255	
Lys	Leu	Arg	Arg	Phe	Ala	Arg	Cys	Ile	Gly	Leu	Leu	Phe	Gln	Val	Val
			260					265					270		
Asp	Asp	Ile	Leu	Asp	Val	Thr	Lys	Ser	Ser	Glu	Glu	Leu	Gly	Lys	Thr
		275					280					285			
Ala	Gly	Lys	Asp	Leu	Ile	Ala	Asp	Lys	Leu	Thr	Tyr	Pro	Lys	Leu	Met
	290					295					300				
Gly	Leu	Glu	Lys	Ser	Lys	Asp	Phe	Ala	Asp	Lys	Leu	Leu	Ser	Asp	Ala
305					310					315					320
His	Glu	Gln	Leu	His	Gly	Phe	Asp	Ser	Ser	Arg	Val	Lys	Pro	Leu	Leu
				325					330					335	
Ala	Leu	Ala	Asn	Tyr	Ile	Ala	Lys	Arg	Gln	Asn					
			340					345							
<210> 36															
<211> 372															
<212> PRT															
<213> Arabidopsis thaliana															
<400> 36															
Met	Glu	Ala	Gln	Asn	Ile	Phe	Leu	Tyr	Leu	Leu	Ile	Val	Phe	Leu	Ser
1				5					10					15	

Leu His Phe Val Phe Thr Thr Leu Lys Gly Arg Leu Ser Pro Ala Asn  
 20 25 30

Thr Arg Arg Leu Ile Arg Leu Leu His Ile Pro Ile Lys Ser Pro Val  
 35 40 45

Ala Ala Ala Ile Phe Ala Arg Lys Asp Thr Arg Glu Phe Leu Asp Ser  
 50 55 60

Ser Ile Lys Leu Val Asn Glu Glu Asp Asp Phe Gly Phe Ser Phe Asp  
 65 70 75 80

Phe Lys Pro Tyr Met Ile Ser Lys Ala Glu Thr Ile Asn Arg Ala Leu  
 85 90 95

Asp Glu Ala Ile Pro Leu Ile Glu Pro Leu Asn Ile His Lys Ala Met  
 100 105 110

Arg Tyr Ala Ile Leu Ala Gly Gly Lys Arg Val Arg Pro Ile Leu Cys  
 115 120 125

Leu Ala Ala Cys Glu Leu Val Gly Gly Glu Glu Arg Leu Ala Ile Gln  
 130 135 140

Ala Ala Cys Ala Val Glu Met Ile His Thr Met Ser Leu Ile Lys Asp  
 145 150 155 160

Asp Leu Pro Cys Met Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr  
 165 170 175

Thr His Lys Val Phe Gly Glu Ser Val Ala Ile Leu Ser Gly Gly Ala  
 180 185 190

Leu Leu Ala Leu Ala Phe Glu His Leu Thr Glu Ala Asp Val Ser Ser  
 195 200 205

Lys Lys Met Val Arg Ala Val Lys Glu Leu Ala Lys Ser Ile Gly Thr  
 210 215 220

Lys Gly Leu Val Ala Gly Gln Ala Lys Asp Leu Ser Ser Glu Gly Leu  
 225 230 235 240

Glu Gln Asn Asp Val Gly Leu Glu Asp Leu Glu Tyr Ile His Val His  
 245 250 255

Lys Thr Gly Ser Leu Leu Glu Ala Ser Ala Val Ile Gly Ala Val Ile  
260 265 270

Gly Gly Gly Thr Glu Lys Glu Ile Glu Lys Val Arg Asn Phe Ala Arg  
275 280 285

Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Glu Thr  
290 295 300

Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly Lys Asp Lys Val Ala  
305 310 315 320

Gly Lys Leu Thr Tyr Pro Lys Val Ile Gly Val Glu Lys Ser Lys Glu  
325 330 335

Phe Val Glu Lys Leu Lys Arg Asp Ala Arg Glu His Leu Gln Gly Phe  
340 345 350

Asp Ser Asp Lys Val Lys Pro Leu Ile Ala Leu Thr Asn Phe Ile Ala  
355 360 365

Asn Arg Asn His  
370

<210> 37  
<211> 326  
<212> PRT  
<213> Arabidopsis thaliana

<400> 37

Met Leu Phe Ser Gly Ser Ala Ile Pro Leu Ser Ser Phe Cys Ser Leu  
1 5 10 15

Pro Glu Lys Pro His Thr Leu Pro Met Lys Leu Ser Pro Ala Ala Ile  
20 25 30

Arg Ser Ser Ser Ser Ser Ala Pro Gly Ser Leu Asn Phe Asp Leu Arg  
35 40 45

Thr Tyr Trp Thr Thr Leu Ile Thr Glu Ile Asn Gln Lys Leu Asp Glu  
50 55 60

Ala Ile Pro Val Lys His Pro Ala Gly Ile Tyr Glu Ala Met Arg Tyr  
65 70 75 80

Ser Val Leu Ala Gln Gly Ala Lys Arg Ala Pro Pro Val Met Cys Val  
85 90 95

Ala Ala Cys Glu Leu Phe Gly Gly Asp Arg Leu Ala Ala Phe Pro Thr  
 100 105 110

Ala Cys Ala Leu Glu Met Val His Ala Ala Ser Leu Ile His Asp Asp  
 115 120 125

Leu Pro Cys Met Asp Asp Asp Pro Val Arg Arg Gly Lys Pro Ser Asn  
 130 135 140

His Thr Val Tyr Gly Ser Gly Met Ala Ile Leu Ala Gly Asp Ala Leu  
 145 150 155 160

Phe Pro Leu Ala Phe Gln His Ile Val Ser His Thr Pro Pro Asp Leu  
 165 170 175

Val Pro Arg Ala Thr Ile Leu Arg Leu Ile Thr Glu Ile Ala Arg Thr  
 180 185 190

Val Gly Ser Thr Gly Met Ala Ala Gly Gln Tyr Val Asp Leu Glu Gly  
 195 200 205

Gly Pro Phe Pro Leu Ser Phe Val Gln Glu Lys Lys Phe Gly Ala Met  
 210 215 220

Gly Glu Cys Ser Ala Val Cys Gly Gly Leu Leu Gly Gly Ala Thr Glu  
 225 230 235 240

Asp Glu Leu Gln Ser Leu Arg Arg Tyr Gly Arg Ala Val Gly Met Leu  
 245 250 255

Tyr Gln Val Val Asp Asp Ile Thr Glu Asp Lys Lys Lys Ser Tyr Asp  
 260 265 270

Gly Gly Ala Glu Lys Gly Met Met Glu Met Ala Glu Glu Leu Lys Glu  
 275 280 285

Lys Ala Lys Lys Glu Leu Gln Val Phe Asp Asn Lys Tyr Gly Gly Gly  
 290 295 300

Asp Thr Leu Val Pro Leu Tyr Thr Phe Val Asp Tyr Ala Ala His Arg  
 305 310 315 320

His Phe Leu Leu Pro Leu  
 325

<210> 38  
 <211> 371  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 38

Met Ala Ser Val Thr Leu Gly Ser Trp Ile Val Val His His His Asn  
 1 5 10 15

His His His Pro Ser Ser Ile Leu Thr Lys Ser Arg Ser Arg Ser Cys  
 20 25 30

Pro Ile Thr Leu Thr Lys Pro Ile Ser Phe Arg Ser Lys Arg Thr Val  
 35 40 45

Ser Ser Ser Ser Ser Ile Val Ser Ser Ser Val Val Thr Lys Glu Asp  
 50 55 60

Asn Leu Arg Gln Ser Glu Pro Ser Ser Phe Asp Phe Met Ser Tyr Ile  
 65 70 75 80

Ile Thr Lys Ala Glu Leu Val Asn Lys Ala Leu Asp Ser Ala Val Pro  
 85 90 95

Leu Arg Glu Pro Leu Lys Ile His Glu Ala Met Arg Tyr Ser Leu Leu  
 100 105 110

Ala Gly Gly Lys Arg Val Arg Pro Val Leu Cys Ile Ala Ala Cys Glu  
 115 120 125

Leu Val Gly Gly Glu Glu Ser Thr Ala Met Pro Ala Ala Cys Ala Val  
 130 135 140

Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Cys Met  
 145 150 155 160

Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Phe  
 165 170 175

Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ala Leu Leu Ser Phe Ala  
 180 185 190

Phe Glu His Leu Ala Ser Ala Thr Ser Ser Asp Val Val Ser Pro Val  
 195 200 205

Arg Val Val Arg Ala Val Gly Glu Leu Ala Lys Ala Ile Gly Thr Glu

210		215		220
Gly Leu Val Ala Gly Gln Val Val Asp Ile Ser Ser Glu Gly Leu Asp				
225		230		240
Leu Asn Asp Val Gly Leu Glu His Leu Glu Phe Ile His Leu His Lys				
	245		250	255
Thr Ala Ala Leu Leu Glu Ala Ser Ala Val Leu Gly Ala Ile Val Gly				
	260		265	270
Gly Gly Ser Asp Asp Glu Ile Glu Arg Leu Arg Lys Phe Ala Arg Cys				
	275		280	285
Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys				
	290		295	300
Ser Ser Lys Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Ile Ala Asp				
305		310		320
Lys Leu Thr Tyr Pro Lys Ile Met Gly Leu Glu Lys Ser Arg Glu Phe				
	325		330	335
Ala Glu Lys Leu Asn Arg Glu Ala Arg Asp Gln Leu Leu Gly Phe Asp				
	340		345	350
Ser Asp Lys Val Ala Pro Leu Leu Ala Leu Ala Asn Tyr Ile Ala Tyr				
	355		360	365
Arg Gln Asn				
	370			
<210> 39				
<211> 288				
<212> PRT				
<213> Rhodobacter sphaeroides				
<400> 39				
Met Ala Phe Glu Gln Arg Ile Glu Ala Ala Met Ala Ala Ala Ile Ala				
1	5		10	15
Arg Gly Gln Gly Ser Glu Ala Pro Ser Lys Leu Ala Thr Ala Leu Asp				
	20		25	30
Tyr Ala Val Thr Pro Gly Gly Ala Arg Ile Arg Pro Thr Leu Leu Leu				
	35		40	45

Ser Val Ala Thr Arg Cys Gly Asp Ser Arg Pro Ala Leu Ser Asp Ala  
50 55 60

Ala Ala Val Ala Leu Glu Leu Ile His Cys Ala Ser Leu Val His Asp  
65 70 75 80

Asp Leu Pro Cys Phe Asp Asp Ala Glu Ile Arg Arg Gly Lys Pro Thr  
85 90 95

Val His Arg Ala Tyr Ser Glu Pro Leu Ala Ile Leu Thr Gly Asp Ser  
100 105 110

Leu Ile Val Met Gly Phe Glu Val Leu Ala Gly Ala Ala Asp Arg  
115 120 125

Pro Gln Arg Ala Leu Gln Leu Val Thr Ala Leu Ala Val Arg Thr Gly  
130 135 140

Met Pro Met Gly Ile Cys Ala Gly Gln Gly Trp Glu Ser Glu Ser Gln  
145 150 155 160

Ile Asn Leu Ser Ala Tyr His Arg Ala Lys Thr Gly Ala Leu Phe Ile  
165 170 175

Ala Ala Thr Gln Met Gly Ala Ile Ala Ala Gly Tyr Glu Ala Glu Pro  
180 185 190

Trp Glu Glu Leu Gly Ala Arg Ile Gly Glu Ala Phe Gln Val Ala Asp  
195 200 205

Asp Leu Arg Asp Ala Leu Cys Asp Ala Glu Thr Leu Gly Lys Pro Ala  
210 215 220

Gly Gln Asp Glu Ile His Ala Arg Pro Ser Ala Val Arg Glu Tyr Gly  
225 230 235 240

Val Glu Gly Ala Ala Lys Gly Leu Lys Asp Ile Leu Gly Gly Ala Ile  
245 250 255

Ala Ser Ile Pro Ser Cys Pro Ala Glu Ala Met Leu Ala Glu Met Val  
260 265 270

Arg Arg Tyr Ala Asp Lys Ile Val Pro Ala Gln Val Ala Ala Arg Val  
275 280 285



<210> 40  
 <211> 302  
 <212> PRT  
 <213> Synechocystis sp.

<400> 40

Met Val Ala Gln Gln Thr Arg Thr Asp Phe Asp Leu Ala Gln Tyr Leu  
 1 5 10 15

Gln Val Lys Lys Gly Val Val Glu Ala Ala Leu Asp Ser Ser Leu Ala  
 20 25 30

Ile Ala Arg Pro Glu Lys Ile Tyr Glu Ala Met Arg Tyr Ser Leu Leu  
 35 40 45

Ala Gly Gly Lys Arg Leu Arg Pro Ile Leu Cys Ile Thr Ala Cys Glu  
 50 55 60

Leu Cys Gly Gly Asp Glu Ala Leu Ala Leu Pro Thr Ala Cys Ala Leu  
 65 70 75 80

Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Ser Met  
 85 90 95

Asp Asn Asp Asp Phe Arg Arg Gly Lys Pro Thr Asn His Lys Val Tyr  
 100 105 110

Gly Glu Asp Ile Ala Ile Leu Ala Gly Asp Gly Leu Leu Ala Tyr Ala  
 115 120 125

Phe Glu Tyr Val Val Thr His Thr Pro Gln Ala Asp Pro Gln Ala Leu  
 130 135 140

Leu Gln Val Ile Ala Arg Leu Gly Arg Thr Val Gly Ala Ala Gly Leu  
 145 150 155 160

Val Gly Gly Gln Val Leu Asp Leu Glu Ser Glu Gly Arg Thr Asp Ile  
 165 170 175

Thr Pro Glu Thr Leu Thr Phe Ile His Thr His Lys Thr Gly Ala Leu  
 180 185 190

Leu Glu Ala Ser Val Leu Thr Gly Ala Ile Leu Ala Gly Ala Thr Gly  
 195 200 205

Glu Gln Gln Gln Arg Leu Ala Arg Tyr Ala Gln Asn Ile Gly Leu Ala  
 210 215 220

Phe Gln Val Val Asp Asp Ile Leu Asp Ile Thr Ala Thr Gln Glu Glu  
 225 230 235 240

Leu Gly Lys Thr Ala Gly Lys Asp Val Lys Ala Gln Lys Ala Thr Tyr  
 245 250 255

Pro Ser Leu Leu Gly Leu Glu Ala Ser Arg Ala Gln Ala Gln Ser Leu  
 260 265 270

Ile Asp Gln Ala Ile Val Ala Leu Glu Pro Phe Gly Pro Ser Ala Glu  
 275 280 285

Pro Leu Gln Ala Ile Ala Glu Tyr Ile Val Ala Arg Lys Tyr  
 290 295 300

<210> 41  
 <211> 376  
 <212> PRT  
 <213> Oryza sativa

<400> 41

Met His Val Leu Ala Gln Ser Thr Ala Val Ala Lys Val Ala Ala Ser  
 1 5 10 15

Gly Cys Leu Arg Arg Ser Pro Asn Pro Ser Val Thr Phe Gln Arg Ser  
 20 25 30

Pro Ser Leu Leu Leu Ser Pro Ala Ala Cys Arg Arg Arg Cys Arg Arg  
 35 40 45

Gly Cys Ser Val Ser Val Asp Val Arg Cys Ser Leu Gly Ala Met Val  
 50 55 60

Thr Pro Glu Leu Asn Gly Gly Asp Val Gly Val Gly Val Gly Gly Gly  
 65 70 75 80

Ser Phe Asp Phe Gln Arg Tyr Leu Ser Ala Arg Ala Asp Ala Val His  
 85 90 95

Asp Ala Leu Asp Arg Ala Met Pro Arg Gly Phe Pro Glu Arg Leu Cys  
 100 105 110

Glu Ser Met Arg Tyr Ser Val Leu Ala Gly Gly Lys Arg Val Arg Pro  
 115 120 125

Val Leu Ala Leu Ala Ala Cys Glu Leu Val Gly Gly Asp Ala Ala Ala  
130 135 140  
Ala Thr Pro Val Ala Cys Ala Val Glu Met Ile His Thr Met Ser Leu  
145 150 155 160  
Ile His Asp Asp Met Pro Cys Met Asp Asp Asp Ala Leu Arg Arg Gly  
165 170 175  
Arg Pro Ser Asn His Val Ala Phe Gly Glu Phe Thr Ala Leu Leu Ala  
180 185 190  
Gly Asp Ala Leu His Ala Leu Ala Phe Glu His Val Ala Arg Gly Cys  
195 200 205  
Gly Asp His Gly Val Pro Ala Asp Arg Thr Leu Arg Ala Val Ala Glu  
210 215 220  
Leu Gly Ser Ala Ser Gly Thr Gly Gly Val Ala Ala Gly Gln Val Ala  
225 230 235 240  
Asp Lys Glu Ser Glu Gly Leu Pro Val Ser Leu Ala Met Leu Glu Tyr  
245 250 255  
Ile His Val His Lys Thr Ala Arg Leu Leu Glu Ala Ala Ala Val Ser  
260 265 270  
Gly Ala Ile Val Gly Gly Gly Ala Asp Ala Glu Val Glu Arg Val Arg  
275 280 285  
Arg Tyr Ala Arg Cys Val Gly Leu Leu Phe Gln Val Val Asp Asp Val  
290 295 300  
Leu Asp Met Thr Ser Thr Ser Glu Gln Leu Gly Lys Thr Ala Gly Lys  
305 310 315 320  
Asp Val Glu Ala Asp Lys Ala Thr Tyr Pro Lys Leu Leu Gly Val Asp  
325 330 335  
Lys Ala Arg Glu Tyr Ala Ala Asp Leu Leu Ala Met Ala Glu Ala Glu  
340 345 350  
Leu Asp Gly Phe Asp Ala Glu Arg Ala Ala Pro Leu Arg His Leu Ala  
355 360 365  
Arg Phe Ile Ala Tyr Arg Gln His

370

375

<210> 42  
 <211> 351  
 <212> PRT  
 <213> Scoparia dulcis

<400> 42

Met Ser Leu Val Asn Pro Val Ser Thr Trp Pro Asn Pro Thr Arg Ser  
 1 5 10 15

Ser Val Phe Arg Pro Lys Pro Ala Ile Leu Asn Thr Thr His Leu Pro  
 20 25 30

Ile Ser Phe Leu Phe Ala Gly Lys Pro Ile Ser Ala Val Leu Thr Lys  
 35 40 45

Glu Tyr Ser His Gln Thr Ser Ser Thr Phe Asp Phe Lys Lys Tyr Met  
 50 55 60

Leu Glu Lys Ala Ser Ser Val Asn Lys Ala Leu Glu Ser Ala Val Ser'  
 65 70 75 80

Leu Lys Glu Pro Leu Lys Ile His Glu Ser Met Arg Tyr Ser Leu Leu  
 85 90 95

Ala Gly Gly Lys Arg Val Arg Pro Met Leu Cys Leu Ala Ala Cys Glu  
 100 105 110

Leu Val Gly Gly His Pro Ser Thr Ala Met Pro Ala Ala Cys Ser Ile  
 115 120 125

Glu Met Ile His Thr Met Ser Leu Met His Asp Asp Leu Pro Cys Met  
 130 135 140

Asp Asn Asp His Leu Arg Arg Gly His Pro Thr Asn His Ile Val Phe  
 145 150 155 160

Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ala Leu Leu Ala Tyr Ser  
 165 170 175

Phe Glu Tyr Leu Ala Thr Ala Thr Glu Gly Val Leu Pro Glu Arg Ile  
 180 185 190

Val Arg Val Ile Ala Glu Leu Ala Lys Cys Ile Arg Ser Glu Gly Leu  
 195 200 205

Leu Ala Gly Gln Val Val Asp Ile Cys Ser Glu Gly Val Ser Glu Ile  
 210 215 220

Gly Leu Glu His Leu Glu Tyr Ile His Leu His Lys Thr Ala Ala Leu  
 225 230 235 240

Leu Glu Gly Ser Val Val Leu Gly Ala Ile Leu Gly Gly Gly Asn Asp  
 245 250 255

Glu Glu Val Glu Arg Leu Arg Lys Phe Ala Arg Cys Ile Gly Leu Leu  
 260 265 270

Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys Thr Ser Val Glu  
 275 280 285

Leu Gly Lys Thr Ala Gly Lys Asp Leu Val Ala Asp Lys Thr Thr Tyr  
 290 295 300

Pro Lys Leu Ile Gly Ile Glu Lys Ser Arg Glu Phe Ala Glu Lys Leu  
 305 310 315 320

Asn Arg Glu Ala Gln Glu Gln Leu Val Gly Phe Asp Ser Asp Lys Ala  
 325 330 335

Ala Pro Leu Ile Ala Leu Ala Asn Tyr Ile Ala Tyr Arg Glu Asn  
 340 345 350

<210> 43  
 <211> 368  
 <212> PRT  
 <213> Croton sublyratus

<400> 43

Met Ser Ser Val Asn Leu Gly Ser Trp Val His Thr Ser Ser Val Ile  
 1 5 10 15

Ser Gln Ala Thr Arg Ser Arg Ser Lys Ser Lys Pro Leu Ser Phe Ser  
 20 25 30

Pro Val Ser Ile Pro Leu Phe Tyr Arg Asn Ser Lys Arg Ser Val Ser  
 35 40 45

Tyr Val Ser Ala Ile Val Thr Lys Asp Glu Glu Thr Ile Gln Glu Glu  
 50 55 60

Gln Asn Lys Asn Ser Ser Ser Ser Leu Gly Phe Asp Phe Lys Ser Tyr

65					70					75					80
Met	Val	Gln	Lys	Ala	Ser	Ala	Ile	Asn	Gln	Ala	Leu	Glu	Ala	Ala	Val
				85					90					95	
Ser	Leu	Arg	Glu	Pro	Leu	Lys	Ile	His	Glu	Ser	Met	Arg	Tyr	Ser	Leu
			100					105					110		
Leu	Ala	Gly	Gly	Lys	Arg	Val	Arg	Pro	Ala	Leu	Cys	Leu	Ala	Ala	Cys
		115					120					125			
Glu	Leu	Val	Gly	Gly	Asp	Glu	Ser	Met	Ala	Met	Pro	Ala	Ala	Cys	Ala
	130					135					140				
Val	Glu	Met	Ile	His	Thr	Met	Ser	Leu	Ile	His	Asp	Asp	Leu	Pro	Cys
145					150					155					160
Met	Asp	Asn	Asp	Asp	Leu	Arg	Arg	Gly	Lys	Pro	Thr	Asn	His	Ile	Val
				165					170					175	
Phe	Gly	Glu	Asn	Val	Ala	Val	Leu	Ala	Gly	Asp	Ala	Leu	Leu	Ala	Phe
			180					185					190		
Ala	Phe	Glu	His	Ile	Ala	Val	Ser	Thr	Leu	Asn	Val	Ser	Pro	Val	Arg
		195					200					205			
Ile	Val	Arg	Gly	Val	Gly	Glu	Leu	Ala	Lys	Ala	Ile	Gly	Ala	Glu	Gly
	210					215					220				
Leu	Val	Ala	Gly	Gln	Val	Val	Asp	Ile	Cys	Ser	Glu	Gly	Leu	Ser	Glu
225					230					235					240
Val	Asp	Leu	Glu	Lys	Leu	Glu	Phe	Ile	His	Ile	His	Lys	Thr	Ala	Lys
				245					250					255	
Leu	Leu	Glu	Gly	Ala	Val	Val	Leu	Gly	Ala	Ile	Met	Gly	Gly	Gly	Thr
			260					265					270		
Asp	Glu	Glu	Val	Glu	Lys	Leu	Arg	Lys	Tyr	Ala	Arg	Asp	Ile	Gly	Leu
		275					280					285			
Leu	Phe	Gln	Val	Val	Asp	Asp	Ile	Leu	Asp	Val	Thr	Lys	Ser	Ser	Gln
	290					295					300				
Glu	Leu	Gly	Lys	Thr	Ala	Gly	Lys	Asp	Leu	Val	Ala	Asp	Lys	Val	Thr
305					310					315					320

Tyr Pro Lys Leu Met Gly Ile Glu Lys Ser Arg Glu Phe Ala Glu Lys  
325 330 335

Leu Asn Lys Glu Ala Gln Glu Gln Leu Ala Gly Phe Asp Pro Glu Lys  
340 345 350

Ala Ala Pro Leu Ile Ala Leu Ala Asn Tyr Ile Ala Tyr Arg Gln Asn  
355 360 365

<210> 44

<211> 392

<212> PRT

<213> Streptomyces coelicolor

<400> 44

Met Arg Thr Thr Glu Ser Glu Lys Gly Leu Arg Met Pro Gly Leu Pro  
1 5 10 15

Pro Met Val Ala Pro Pro Ala Glu Gln Val Asp Asp Pro Val Thr Ala  
20 25 30

Thr Asp Ala Ala Asn Ala Val Asp Ala Val Leu Arg Gly Val Leu Asp  
35 40 45

Glu Arg Leu Arg His Cys Arg Ala Val Asp Pro Leu Phe Ala Arg Glu  
50 55 60

Leu Ala Asp Arg Leu Ala Ala Leu Thr Ala Arg Gly Gly Lys Arg Leu  
65 70 75 80

Arg Thr Ala Phe Ala His Cys Gly Trp Arg Ala Ala Gly Gly Ser Gly  
85 90 95

Asp Ala Thr Ala Val Leu Arg Thr Gly Ala Ala Leu Glu Leu Leu Gln  
100 105 110

Ala Cys Ala Leu Val His Asp Asp Val Met Asp Gly Ser Val Gln Arg  
115 120 125

Arg Gly Ala Pro Ala Leu His Val Asp Leu Ala Arg Gly His Trp Ala  
130 135 140

Ala Gly Met His Gly Ser Ser Glu Ser Phe Gly Thr Ser Ala Ala Val  
145 150 155 160

Leu Thr Gly Asp Leu Ala Leu Ala Trp Ala Asp Asp Leu Leu Thr Glu  
165 170 175

Thr Ala Leu Gly Thr Pro His Gly Pro Arg Leu His Gly Glu Trp Arg  
180 185 190

Ala Met Arg Thr Glu Met Val Ala Gly Gln Tyr Arg Asp Leu His Ala  
195 200 205

Gln Ala Ala Arg Ser Ser Gly Val Asp Glu Ala Leu Ala Ile Ala Thr  
210 215 220

Leu Lys Ser Ala Leu Tyr Thr Val Ala Arg Pro Leu Ala Leu Gly Ala  
225 230 235 240

Val Leu Ala Gly Ala Ala Asp Gly Asp Ala Leu Glu Ala Leu Arg Ala  
245 250 255

Ala Gly Arg Cys Ala Gly Leu Ala Phe Gln Leu Arg Asp Asp Leu Leu  
260 265 270

Gly Ala Phe Gly Asp Pro Ala Leu Thr Gly Lys Pro Ala Asp Asp Asp  
275 280 285

Leu Arg Ser Arg Lys Leu Thr Tyr Leu Leu Ala Val Ala Val Arg Leu  
290 295 300

Ala Asp Ala Ala Asp Asp His Leu Ala Ala Ala Ala Leu Ala Pro Asp  
305 310 315 320

Ala Asp Pro Lys Ser Glu Lys Ala Val Arg Gln Val Arg Ser Ala Leu  
325 330 335

Val Arg Thr Gly Ala Arg Asp Leu Val Glu Thr Lys Ile Gly Glu Leu  
340 345 350

Thr Asp Met Ser Leu Ala His Phe Asp Arg Cys Gly Ala Arg Pro Ala  
355 360 365

Val Arg His Glu Phe Ala Ala Leu Ile Gly Arg Ala Thr Gly Ala Val  
370 375 380

Pro Arg Gly Thr Gly Glu Val Val  
385 390

<210> 45



<211> 291  
 <212> PRT  
 <213> Paracoccus marcusii

<400> 45

Met Arg Arg Asp Val Asn Pro Ile His Ala Thr Leu Leu Gln Thr Arg  
 1 5 10 15

Ile Glu Glu Ile Ala Gln Gly Phe Gly Ala Val Leu Gln Pro Leu Gly  
 20 25 30

Ala Ala Met Ala Ala Leu Ser Ser Gly Lys Arg Phe Arg Gly Met Leu  
 35 40 45

Met Leu Leu Ala Ala Glu Ala Ser Gly Gly Val Cys Asp Thr Ile Val  
 50 55 60

Asp Ala Ala Cys Ala Val Glu Met Val His Ala Ala Ser Leu Ile Phe  
 65 70 75 80

Asp Asp Leu Pro Cys Met Asp Asp Ala Gly Leu Arg Arg Gly Gln Pro  
 85 90 95

Ala Thr His Val Ala His Gly Glu Ser Arg Ala Val Leu Gly Gly Ile  
 100 105 110

Ala Leu Ile Thr Glu Ala Met Ala Leu Leu Ala Gly Ala Arg Gly Ala  
 115 120 125

Ser Gly Thr Val Arg Ala Gln Leu Val Arg Ile Leu Ser Arg Ser Leu  
 130 135 140

Gly Pro Gln Gly Leu Cys Ala Gly Gln Asp Leu Asp Leu His Ala Ala  
 145 150 155 160

Lys Asn Gly Ala Gly Val Glu Gln Glu Gln Asp Leu Lys Thr Gly Val  
 165 170 175

Leu Phe Ile Ala Gly Leu Glu Met Leu Ala Val Ile Lys Glu Phe Asp  
 180 185 190

Ala Glu Glu Gln Thr Gln Met Ile Asp Phe Gly Arg Gln Leu Gly Arg  
 195 200 205

Val Phe Gln Ser Tyr Asp Asp Leu Leu Glu Val Val Gly Asp Gln Ala  
 210 215 220

Ala Leu Gly Lys Asp Thr Gly Arg Asp Ala Ala Ala Pro Gly Pro Arg  
 225 230 235 240

Arg Gly Leu Leu Ala Val Ser Asp Leu Gln Lys Val Ser Arg Gln Tyr  
 245 250 255

Glu Ala Ser Arg Ala Gln Leu Glu Gly Met Val Gly Ser Lys Arg Leu  
 260 265 270

Gln Ala Pro Glu Ile Glu Ala Leu Leu Glu Arg Val Leu Pro Tyr Ala  
 275 280 285

Ala Arg Ala  
 290

<210> 46  
 <211> 300  
 <212> PRT  
 <213> Human

<400> 46

Met Glu Lys Thr Gln Glu Thr Val Gln Arg Ile Leu Leu Glu Pro Tyr  
 1 5 10 15

Lys Tyr Leu Leu Gln Leu Pro Gly Lys Gln Val Arg Thr Lys Leu Ser  
 20 25 30

Gln Ala Phe Asn His Trp Leu Lys Val Pro Glu Asp Lys Leu Gln Ile  
 35 40 45

Ile Ile Glu Val Thr Glu Met Leu His Asn Ala Ser Leu Leu Ile Asp  
 50 55 60

Asp Ile Glu Asp Asn Ser Lys Leu Arg Arg Gly Phe Pro Val Ala His  
 65 70 75 80

Ser Ile Tyr Gly Ile Pro Ser Val Ile Asn Ser Ala Asn Tyr Val Tyr  
 85 90 95

Phe Leu Gly Leu Glu Lys Val Leu Thr Leu Asp His Pro Asp Ala Val  
 100 105 110

Lys Leu Phe Thr Arg Gln Leu Leu Glu Leu His Gln Gly Gln Gly Leu  
 115 120 125

Asp Ile Tyr Trp Arg Asp Asn Tyr Thr Cys Pro Thr Glu Glu Glu Tyr

130		135		140
Lys Ala Met Val Leu Gln Lys Thr Gly Gly Leu Phe Gly Leu Ala Val				
145		150		155
				160
Gly Leu Met Gln Leu Phe Ser Asp Tyr Lys Glu Asp Leu Lys Pro Leu				
	165		170	175
Leu Asn Thr Leu Gly Leu Phe Phe Gln Ile Arg Asp Asp Tyr Ala Asn				
	180		185	190
Leu His Ser Lys Glu Tyr Ser Glu Asn Lys Ser Phe Cys Glu Asp Leu				
	195		200	205
Thr Glu Gly Lys Phe Ser Phe Pro Thr Ile His Ala Ile Trp Ser Arg				
	210		215	220
Pro Glu Ser Thr Gln Val Gln Asn Ile Leu Arg Gln Arg Thr Glu Asn				
225		230		235
				240
Ile Asp Ile Lys Lys Tyr Cys Val His Tyr Leu Glu Asp Val Gly Ser				
	245		250	255
Phe Glu Tyr Thr Arg Asn Thr Leu Lys Glu Leu Glu Ala Lys Ala Tyr				
	260		265	270
Lys Gln Ile Asp Ala Arg Gly Gly Asn Pro Glu Leu Val Ala Leu Val				
	275		280	285
Lys His Leu Ser Lys Met Phe Lys Glu Glu Asn Glu				
	290		295	300

<210> 47  
 <211> 371  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 47

Met Ala Ser Val Thr Leu Gly Ser Trp Ile Val Val His His His Asn				
1		5		10
				15
His His His Pro Ser Ser Ile Leu Thr Lys Ser Arg Ser Arg Ser Cys				
	20		25	30
Pro Ile Thr Leu Thr Lys Pro Ile Ser Phe Arg Ser Lys Arg Thr Val				
	35		40	45

Ser Ser Ser Ser Ser Ile Val Ser Ser Ser Val Val Thr Lys Glu Asp  
 50 55 60

Asn Leu Arg Gln Ser Glu Pro Ser Ser Phe Asp Phe Met Ser Tyr Ile  
 65 70 75 80

Ile Thr Lys Ala Glu Leu Val Asn Lys Ala Leu Asp Ser Ala Val Pro  
 85 90 95

Leu Arg Glu Pro Leu Lys Ile His Glu Ala Met Arg Tyr Ser Leu Leu  
 100 105 110

Ala Gly Gly Lys Arg Val Arg Pro Val Leu Cys Ile Ala Ala Cys Glu  
 115 120 125

Leu Val Gly Gly Glu Glu Ser Thr Ala Met Pro Ala Ala Cys Ala Val  
 130 135 140

Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Cys Met  
 145 150 155 160

Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Phe  
 165 170 175

Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ala Leu Leu Ser Phe Ala  
 180 185 190

Phe Glu His Leu Ala Ser Ala Thr Ser Ser Asp Val Val Ser Pro Val  
 195 200 205

Arg Val Val Arg Ala Val Gly Glu Leu Ala Lys Ala Ile Gly Thr Glu  
 210 215 220

Gly Leu Val Ala Gly Gln Val Val Asp Ile Ser Ser Glu Gly Leu Asp  
 225 230 235 240

Leu Asn Asp Val Gly Leu Glu His Leu Glu Phe Ile His Leu His Lys  
 245 250 255

Thr Ala Ala Leu Leu Glu Ala Ser Ala Val Leu Gly Ala Ile Val Gly  
 260 265 270

Gly Gly Ser Asp Asp Glu Ile Glu Arg Leu Arg Lys Phe Ala Arg Cys  
 275 280 285

Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys  
 290 295 300

Ser Ser Lys Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Ile Ala Asp  
 305 310 315 320

Lys Leu Thr Tyr Pro Lys Ile Met Gly Leu Glu Lys Ser Arg Glu Phe  
 325 330 335

Ala Glu Lys Leu Asn Arg Glu Ala Arg Asp Gln Leu Leu Gly Phe Asp  
 340 345 350

Ser Asp Lys Val Ala Pro Leu Leu Ala Leu Ala Asn Tyr Ile Ala Tyr  
 355 360 365

Arg Gln Asn  
 370

<210> 48  
 <211> 326  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 48

Met Leu Phe Ser Gly Ser Ala Ile Pro Leu Ser Ser Phe Cys Ser Leu  
 1 5 10 15

Pro Glu Lys Pro His Thr Leu Pro Met Lys Leu Ser Pro Ala Ala Ile  
 20 25 30

Arg Ser Ser Ser Ser Ser Ala Pro Gly Ser Leu Asn Phe Asp Leu Arg  
 35 40 45

Thr Tyr Trp Thr Thr Leu Ile Thr Glu Ile Asn Gln Lys Leu Asp Glu  
 50 55 60

Ala Ile Pro Val Lys His Pro Ala Gly Ile Tyr Glu Ala Met Arg Tyr  
 65 70 75 80

Ser Val Leu Ala Gln Gly Ala Lys Arg Ala Pro Pro Val Met Cys Val  
 85 90 95

Ala Ala Cys Glu Leu Phe Gly Gly Asp Arg Leu Ala Ala Phe Pro Thr  
 100 105 110

Ala Cys Ala Leu Glu Met Val His Ala Ala Ser Leu Ile His Asp Asp  
 115 120 125

Leu Pro Cys Met Asp Asp Asp Pro Val Arg Arg Gly Lys Pro Ser Asn  
 130 135 140

His Thr Val Tyr Gly Ser Gly Met Ala Ile Leu Ala Gly Asp Ala Leu  
 145 150 155 160

Phe Pro Leu Ala Phe Gln His Ile Val Ser His Thr Pro Pro Asp Leu  
 165 170 175

Val Pro Arg Ala Thr Ile Leu Arg Leu Ile Thr Glu Ile Ala Arg Thr  
 180 185 190

Val Gly Ser Thr Gly Met Ala Ala Gly Gln Tyr Val Asp Leu Glu Gly  
 195 200 205

Gly Pro Phe Pro Leu Ser Phe Val Gln Glu Lys Lys Phe Gly Ala Met  
 210 215 220

Gly Glu Cys Ser Ala Val Cys Gly Gly Leu Leu Gly Gly Ala Thr Glu  
 225 230 235 240

Asp Glu Leu Gln Ser Leu Arg Arg Tyr Gly Arg Ala Val Gly Met Leu  
 245 250 255

Tyr Gln Val Val Asp Asp Ile Thr Glu Asp Lys Lys Lys Ser Tyr Asp  
 260 265 270

Gly Gly Ala Glu Lys Gly Met Met Glu Met Ala Glu Glu Leu Lys Glu  
 275 280 285

Lys Ala Lys Lys Glu Leu Gln Val Phe Asp Asn Lys Tyr Gly Gly Gly  
 290 295 300

Asp Thr Leu Val Pro Leu Tyr Thr Phe Val Asp Tyr Ala Ala His Arg  
 305 310 315 320

His Phe Leu Leu Pro Leu  
 325

<210> 49  
 <211> 393  
 <212> PRT  
 <213> Taxus canadensis

<400> 49

Met Ala Tyr Thr Ala Met Ala Ala Gly Thr Gln Ser Leu Gln Leu Arg  
1 5 10 15  
Thr Val Ala Ser Tyr Gln Glu Cys Asn Ser Met Arg Ser Cys Phe Lys  
20 25 30  
Leu Thr Pro Phe Lys Ser Phe His Gly Val Asn Phe Asn Val Pro Ser  
35 40 45  
Leu Gly Ala Ala Asn Cys Glu Ile Met Gly His Leu Lys Leu Gly Ser  
50 55 60  
Leu Pro Tyr Lys Gln Cys Ser Val Ser Ser Lys Ser Thr Lys Thr Met  
65 70 75 80  
Ala Gln Leu Val Asp Leu Ala Glu Thr Glu Lys Ala Glu Gly Lys Asp  
85 90 95  
Ile Glu Phe Asp Phe Asn Glu Tyr Met Lys Ser Lys Ala Val Ala Val  
100 105 110  
Asp Ala Ala Leu Asp Lys Ala Ile Pro Leu Glu Tyr Pro Glu Lys Ile  
115 120 125  
His Glu Ser Met Arg Tyr Ser Leu Leu Ala Gly Gly Lys Arg Val Arg  
130 135 140  
Pro Ala Leu Cys Ile Ala Ala Cys Glu Leu Val Gly Gly Ser Gln Asp  
145 150 155 160  
Leu Ala Met Pro Thr Ala Cys Ala Met Glu Met Ile His Thr Met Ser  
165 170 175  
Leu Ile His Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Phe Arg Arg  
180 185 190  
Gly Lys Pro Thr Asn His Lys Val Phe Gly Glu Asp Thr Ala Val Leu  
195 200 205  
Ala Gly Asp Ala Leu Leu Ser Phe Ala Phe Glu His Ile Ala Val Ala  
210 215 220  
Thr Ser Lys Thr Val Pro Ser Asp Arg Thr Leu Arg Val Ile Ser Glu  
225 230 235 240  
Leu Gly Lys Thr Ile Gly Ser Gln Gly Leu Val Gly Gly Gln Val Val

	245		250		255
Asp Ile Thr	Ser Glu Gly Asp Ala Asn Val Asp Leu Lys Thr Leu Glu				
	260		265		270
Trp Ile His	Ile His Lys Thr Ala Val Leu Leu Glu Cys Ser Val Val				
	275		280		285
Ser Gly Gly	Ile Leu Gly Gly Ala Thr Glu Asp Glu Ile Ala Arg Ile				
	290		295		300
Arg Arg Tyr	Ala Arg Cys Val Gly Leu Leu Phe Gln Val Val Asp Asp				
	305		310		315
Ile Leu Asp	Val Thr Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly				
		325		330	335
Lys Asp Leu	Leu Thr Asp Lys Ala Thr Tyr Pro Lys Leu Met Gly Leu				
		340		345	350
Glu Lys Ala	Lys Glu Phe Ala Ala Glu Leu Ala Thr Arg Ala Lys Glu				
		355		360	365
Glu Leu Ser	Ser Phe Asp Gln Ile Lys Ala Ala Pro Leu Leu Gly Leu				
		370		375	380
Ala Asp Tyr	Ile Ala Phe Arg Gln Asn				
		385		390	

<210> 50  
 <211> 356  
 <212> PRT  
 <213> Helianthus annuus

<400> 50

Met Arg Pro	Met Ser Leu Val His Ser Cys Ser Ile Phe Thr Gly Ser
1	5 10 15
Ser Phe Ile	Lys Thr Thr Pro Ile Asn Asn Lys Pro Thr Phe Lys Ile
	20 25 30
His Gln Arg	Pro Thr Ile Arg Ser Thr Ile Ser Ala Ala Ile Val Glu
	35 40 45
Glu Glu Val	Val Glu Leu Gln Gln Lys Pro Lys Pro Thr Phe Asn Phe
	50 55 60



Asn Ala Tyr Met Leu Gly Lys Gly Asn Ser Val His Lys Ala Leu Asp  
65 70 75 80

Glu Ser Ile Met Ile Lys Asn Pro Pro Thr Ile His Glu Ala Met Arg  
85 90 95

Tyr Ser Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Ile Leu Cys Ile  
100 105 110

Ala Ala Cys Glu Leu Val Gly Gly Glu Glu Ala Thr Ala Met Pro Ala  
115 120 125

Ala Cys Ala Val Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp  
130 135 140

Leu Pro Cys Met Asp Asn Asp Asp Phe Arg Arg Gly Lys Pro Thr Asn  
145 150 155 160

His Lys Val Tyr Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ser Leu  
165 170 175

Leu Ala Phe Ala Phe Glu Tyr Val Ser Ser Arg Thr Glu Gly Ala Ser  
180 185 190

Pro Ala Arg Val Leu Ala Ala Ile Gly Glu Leu Ala Lys Ser Ile Gly  
195 200 205

Thr Glu Gly Leu Val Ala Gly Gln Val Val Asp Ile Ala Ser Thr Gly  
210 215 220

Gly Gln Asp Ile Gly Leu Asp Gln Leu Glu Phe Ile His Ile His Lys  
225 230 235 240

Thr Ala Ala Leu Leu Glu Ala Ser Val Val Leu Gly Ala Ile Leu Gly  
245 250 255

Gly Gly Ser Asp Ala Gln Val Glu Lys Leu Arg Thr Phe Ala Arg Cys  
260 265 270

Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys  
275 280 285

Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Leu Val Asp  
290 295 300

Lys Thr Thr Tyr Pro Lys Leu Leu Gly Leu Asp Lys Ser Arg Gln Phe  
305 310 315 320

Ala Glu Glu Leu Leu Ala Glu Ala Lys Gln Gln Leu Glu Glu Phe Glu  
325 330 335

Ser Gln Ala Ala Val Ala Pro Leu Leu Ala Leu Ala Glu Tyr Ile Ala  
340 345 350

Tyr Arg Gln Asn  
355

<210> 51  
<211> 352  
<212> PRT  
<213> Mycobacterium tuberculosis

<400> 51

Met Ala Gly Ala Ile Thr Asp Gln Leu Arg Arg Tyr Leu His Gly Arg  
1 5 10 15

Arg Arg Ala Ala Ala His Met Gly Ser Asp Tyr Asp Gly Leu Ile Ala  
20 25 30

Asp Leu Glu Asp Phe Val Leu Gly Gly Gly Lys Arg Leu Arg Pro Leu  
35 40 45

Phe Ala Tyr Trp Gly Trp His Ala Val Ala Ser Arg Glu Pro Asp Pro  
50 55 60

Asp Val Leu Leu Leu Phe Ser Ala Leu Glu Leu Leu His Ala Trp Ala  
65 70 75 80

Leu Val His Asp Asp Leu Ile Asp Arg Ser Ala Thr Arg Arg Gly Arg  
85 90 95

Pro Thr Ala Gln Leu Arg Tyr Ala Ala Leu His Arg Asp Arg Asp Trp  
100 105 110

Arg Gly Ser Pro Asp Gln Phe Gly Met Ser Ala Ala Ile Leu Leu Gly  
115 120 125

Asp Leu Ala Gln Val Trp Ala Asp Asp Ile Val Ser Lys Val Cys Gln  
130 135 140

Ser Ala Leu Ala Pro Asp Ala Gln Arg Arg Val His Arg Val Trp Ala  
145 150 155 160

Asp Ile Arg Asn Glu Val Leu Gly Gly Gln Tyr Leu Asp Ile Val Ala  
165 170 175

Glu Ala Ser Ala Ala Glu Ser Ile Glu Ser Ala Met Asn Val Ala Thr  
180 185 190

Leu Lys Thr Ala Cys Tyr Thr Val Ser Arg Pro Leu Gln Leu Gly Thr  
195 200 205

Ala Ala Ala Ala Asp Arg Ser Asp Val Ala Ala Ile Phe Glu His Phe  
210 215 220

Gly Ala Asp Leu Gly Val Ala Phe Gln Leu Arg Asp Asp Val Leu Gly  
225 230 235 240

Val Phe Gly Asp Pro Ala Val Thr Gly Lys Pro Ser Gly Asp Asp Leu  
245 250 255

Lys Ser Gly Lys Arg Thr Val Leu Val Ala Glu Ala Val Glu Leu Ala  
260 265 270

Asp Arg Ser Asp Pro Leu Ala Ala Lys Leu Leu Arg Thr Ser Ile Gly  
275 280 285

Thr Arg Leu Thr Asp Ala Gln Val Arg Glu Leu Arg Thr Val Ile Glu  
290 295 300

Ala Val Gly Ala Arg Ala Ala Ala Glu Ser Arg Ile Ala Ala Leu Thr  
305 310 315 320

Gln Arg Ala Leu Ala Thr Leu Ala Ser Ala Pro Ile Asn Ala Thr Ala  
325 330 335

Lys Ala Gly Leu Ser Glu Leu Ala Met Met Ala Ala Asn Arg Ser Ala  
340 345 350

<210> 52  
<211> 262  
<212> PRT  
<213> Aquifex aeolicus

<400> 52

Met Glu Arg Ile Glu Thr Trp Lys Glu Lys Ile Glu Lys Arg Leu Asn  
1 5 10 15

Glu Ile Leu Lys Pro Glu Gly Pro Glu Glu Leu Ile Glu Ala Met Lys  
 20 25 30  
 Tyr Tyr Pro Leu Gln Lys Gly Lys Arg Ile Arg Pro Leu Phe Thr Val  
 35 40 45  
 Ala Val Ala Ser Ala Leu Gly Gly Asn Glu Asp Asp Ala Ile Thr Val  
 50 55 60  
 Gly Ser Gly Ile Glu Leu Ile His Asn Tyr Ser Leu Ile His Asp Asp  
 65 70 75 80  
 Leu Pro Cys Met Asp Asn Asp Val Trp Arg Arg Gly Leu Pro Thr Cys  
 85 90 95  
 His Ile Lys Phe Gly Glu Ala Met Ala Leu Leu Ala Gly Asp Ala Leu  
 100 105 110  
 Leu Thr Tyr Thr Phe Glu Val Leu Ser Gln Arg Glu Asn Tyr Lys Thr  
 115 120 125  
 Leu Ser Cys Glu Glu Ile Leu Glu Ile Asn Lys Ile Ile Ala Gln Lys  
 130 135 140  
 Ala Gly Ser Asn Gly Met Val Gly Gly Gln Val Leu Asp Ile Lys Gly  
 145 150 155 160  
 Tyr Glu Asp Leu Tyr Glu Val Ser Val Lys Lys Thr Gly Ala Leu Phe  
 165 170 175  
 Glu Ala Cys Phe Met Cys Gly Ala Val Val Ala Lys Arg Arg Glu Lys  
 180 185 190  
 Leu Lys Glu Met Glu Ser Ile Gly Arg Lys Val Gly Leu Leu Phe Gln  
 195 200 205  
 Met Val Asp Asp Tyr Leu Asp Lys Asp Gly Phe Tyr Glu Lys Leu Gly  
 210 215 220  
 Glu Cys Leu Lys Glu Glu Ile Lys Lys Leu Tyr Glu Glu Leu Lys Glu  
 225 230 235 240  
 Lys Glu Ile Phe Lys Glu Ser Gln Glu Leu Arg Tyr Leu Leu Asp Leu  
 245 250 255  
 Ile Tyr Lys Arg Ile Thr

260

<210> 53  
<211> 366  
<212> PRT  
<213> Sinapis alba

<400> 53

Met Ala Ser Ser Val Thr Pro Leu Gly Ser Trp Val Leu Leu His His  
1 5 10 15

His Pro Ser Thr Ile Leu Thr Gln Ser Arg Ser Arg Ser Pro Pro Ser  
20 25 30

Leu Ile Thr Leu Lys Pro Ile Ser Leu Thr Pro Lys Arg Thr Val Ser  
35 40 45

Ser Ser Ser Ser Ser Ser Leu Ile Thr Lys Glu Asp Asn Asn Leu Lys  
50 55 60

Ser Ser Ser Ser Ser Phe Asp Phe Met Ser Tyr Ile Ile Arg Lys Ala  
65 70 75 80

Asp Ser Val Asn Lys Ala Leu Asp Ser Ala Val Pro Leu Arg Glu Pro  
85 90 95

Leu Lys Ile His Glu Ala Met Arg Tyr Ser Leu Leu Ala Gly Gly Lys  
100 105 110

Arg Val Arg Pro Val Leu Cys Ile Ala Ala Cys Glu Leu Val Gly Gly  
115 120 125

Glu Glu Ser Leu Ala Met Pro Ala Arg Cys Ala Val Glu Met Ile His  
130 135 140

Thr Met Ser Leu Ile His Asp Asp Leu Pro Cys Met Asp Asn Asp Asp  
145 150 155 160

Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Tyr Gly Glu Asp Val  
165 170 175

Ala Val Leu Ala Gly Asp Ala Leu Leu Ser Phe Ala Phe Glu His Leu  
180 185 190

Ala Ser Ala Thr Ser Ser Glu Val Ser Pro Ala Arg Val Val Arg Ala  
195 200 205

Val Gly Glu Leu Ala Lys Ala Ile Gly Thr Glu Gly Leu Val Ala Gly  
 210 215 220

Gln Val Val Asp Ile Ser Ser Glu Gly Leu Asp Leu Asn Asn Val Gly  
 225 230 235 240

Leu Glu His Leu Lys Phe Ile His Leu His Lys Thr Ala Ala Leu Leu  
 245 250 255

Glu Ala Ser Ala Val Leu Gly Gly Ile Ile Gly Gly Gly Ser Asp Glu  
 260 265 270

Glu Ile Glu Arg Leu Arg Lys Phe Ala Arg Cys Ile Gly Leu Leu Phe  
 275 280 285

Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys Ser Ser Gln Glu Leu  
 290 295 300

Gly Lys Thr Ala Gly Lys Asp Leu Ile Ala Asp Lys Leu Thr Tyr Pro  
 305 310 315 320

Lys Leu Met Gly Leu Glu Lys Ser Arg Glu Phe Ala Glu Lys Leu Asn  
 325 330 335

Thr Glu Ala Arg Asp Gln Leu Leu Gly Phe Asp Ser Asp Lys Val Ala  
 340 345 350

Pro Leu Leu Ala Leu Ala Asn Tyr Ile Ala Asn Arg Gln Asn  
 355 360 365

<210> 54  
 <211> 222  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 54

Thr Ser Ser Leu Ile His Asp Asp Leu Pro Cys Met Asp Asn Ala Asp  
 1 5 10 15

Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Tyr Gly Glu Asp Met  
 20 25 30

Ala Val Leu Ala Gly Asp Ala Leu Leu Ala Leu Ala Phe Glu His Met  
 35 40 45

Thr Val Val Ser Ser Gly Leu Val Ala Pro Glu Arg Met Ile Arg Ala

50		55		60
Val Val Glu Leu Ala Arg Ala Ile Gly Thr Thr Gly Leu Val Ala Gly				
65		70		75
Gln Met Ile Asp Leu Ala Ser Glu Arg Leu Asn Pro Asp Lys Val Gly				
	85		90	95
Leu Glu His Leu Glu Phe Ile His Leu His Lys Thr Ala Ala Leu Leu				
	100		105	110
Glu Ala Ala Ala Val Leu Gly Val Ile Met Gly Gly Gly Thr Glu Glu				
	115		120	125
Glu Ile Glu Lys Leu Arg Lys Tyr Ala Arg Cys Ile Gly Leu Leu Phe				
	130		135	140
Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys Ser Thr Glu Glu Leu				
145		150	155	160
Gly Lys Thr Ala Gly Lys Asp Val Met Ala Gly Lys Leu Thr Tyr Pro				
	165		170	175
Arg Leu Ile Gly Leu Glu Arg Ser Lys Glu Val Ala Glu Lys Leu Arg				
	180		185	190
Arg Glu Ala Glu Glu Gln Leu Leu Gly Phe Asp Pro Ser Lys Ala Ala				
	195		200	205
Pro Leu Val Ala Leu Ala Ser His Ile Ala Phe Arg His Asn				
	210		215	220
<210> 55				
<211> 357				
<212> PRT				
<213> Catharanthus roseus				
<400> 55				
Met Arg Ser Asn Leu Cys His Pro Leu Lys Asn Gln Leu Pro Ile Ser				
1	5		10	15
Phe Phe Leu Ser Gly Thr Ile Arg Lys Pro Ile Phe Ser Cys Ser Arg				
	20		25	30
Leu Ser Ile Ser Ala Ile Ile Thr Lys Glu Gln Thr Gln Glu Glu Ser				
	35		40	45

Glu Ser Lys Ser Lys Lys Glu Val Ala Phe Ser Ser Ser Ser Ser Phe  
 50 55 60

Asp Phe Lys Ala Tyr Met Ile Gly Lys Ala Asn Ser Val Asn Lys Ala  
 65 70 75 80

Leu Glu Asp Ala Val Leu Val Arg Glu Pro Leu Lys Ile His Glu Ser  
 85 90 95

Met Arg Tyr Ser Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Met Leu  
 100 105 110

Cys Ile Ala Ala Cys Glu Leu Phe Gly Gly Thr Glu Ser Val Ala Met  
 115 120 125

Pro Ser Ala Cys Ala Val Glu Met Ile His Thr Met Ser Leu Met His  
 130 135 140

Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro  
 145 150 155 160

Thr Asn His Lys Val Phe Gly Glu Asp Val Ala Val Leu Ala Gly Asp  
 165 170 175

Ala Leu Leu Ala Phe Ala Phe Glu His Ile Ala Thr Ala Thr Lys Gly  
 180 185 190

Val Ser Ser Glu Arg Ile Val Arg Val Val Gly Glu Leu Ala Lys Cys  
 195 200 205

Ile Gly Ser Glu Gly Leu Val Ala Gly Gln Val Val Asp Val Cys Ser  
 210 215 220

Glu Gly Ile Ala Asp Val Gly Leu Glu His Leu Glu Phe Ile His Ile  
 225 230 235 240

His Lys Thr Ala Ala Leu Leu Glu Gly Ser Val Val Leu Gly Ala Ile  
 245 250 255

Val Gly Gly Ala Asn Asp Glu Gln Ile Ser Lys Leu Arg Lys Phe Ala  
 260 265 270

Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val  
 275 280 285



Thr Lys Ser Ser Gln Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Val  
 290 295 300

Ala Asp Lys Val Thr Tyr Pro Lys Leu Leu Gly Ile Asp Lys Ser Arg  
 305 310 315 320

Glu Phe Ala Glu Lys Leu Asn Arg Glu Ala Gln Glu Gln Leu Ala Glu  
 325 330 335

Phe Asp Pro Glu Lys Ala Ala Pro Leu Ile Ala Leu Ala Asn Tyr Ile  
 340 345 350

Ala Tyr Arg Asp Asn  
 355

<210> 56  
 <211> 369  
 <212> PRT  
 <213> Capsicum annum

<400> 56

Met Arg Ser Met Asn Leu Val Asp Leu Trp Ala Gln Gln Ala Cys Leu  
 1 5 10 15

Val Phe Asn Gln Thr Leu Ser Tyr Lys Ser Phe Asn Gly Phe Met Lys  
 20 25 30

Ile Pro Leu Lys Asn Ser Lys Ile Asn Pro Lys Leu Asn Lys Lys Arg  
 35 40 45

Pro Phe Ser Pro Leu Thr Val Ser Ala Ile Ala Thr Thr Lys Glu Asp  
 50 55 60

Glu Arg Ile Glu Ala Ala Gln Thr Glu Glu Pro Phe Asn Phe Lys Ile  
 65 70 75 80

Tyr Val Thr Glu Lys Ala Ile Ser Val Asn Lys Ala Leu Asp Glu Ala  
 85 90 95

Ile Ile Val Lys Glu Pro His Val Ile His Glu Ala Met Arg Tyr Ser  
 100 105 110

Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Met Leu Cys Leu Ala Ala  
 115 120 125

Cys Glu Leu Val Gly Gly Asn Gln Glu Asn Ala Met Ala Ala Ala Cys  
 130 135 140

Ala Val Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro  
 145 150 155 160

Cys Met Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Asn His Lys  
 165 170 175

Ile Tyr Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ser Leu Leu Ala  
 180 185 190

Phe Ala Phe Glu His Ile Val Asn Ser Thr Ala Gly Val Thr Pro Ser  
 195 200 205

Arg Ile Val Gly Ala Val Ala Glu Leu Ala Lys Ser Ile Gly Thr Glu  
 210 215 220

Gly Leu Val Ala Gly Gln Val Ala Asp Ile Lys Cys Thr Gly Asn Ala  
 225 230 235 240

Ser Val Ser Leu Glu Thr Leu Glu Phe Ile His Val His Lys Thr Ala  
 245 250 255

Ala Leu Leu Glu Ser Ser Val Val Leu Gly Ala Ile Leu Gly Gly Gly  
 260 265 270

Thr Asn Val Glu Val Glu Lys Leu Arg Arg Phe Ala Arg Cys Ile Gly  
 275 280 285

Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys Ser Ser  
 290 295 300

Glu Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Val Val Asp Lys Thr  
 305 310 315 320

Thr Tyr Pro Lys Leu Leu Gly Leu Glu Lys Ala Lys Glu Phe Ala Ala  
 325 330 335

Glu Leu Asn Arg Glu Ala Lys Gln Gln Leu Glu Gly Phe Asp Ser Arg  
 340 345 350

Lys Ala Ala Pro Leu Ile Ala Leu Ala Asp Tyr Ile Ala Tyr Arg Asp  
 355 360 365

Asn

<210> 57  
 <211> 157  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 57

Ala Val Glu Met Met His Thr Met Ser Leu Ile Lys Asp Asp Leu Pro  
 1 5 10 15

Cys Met Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Thr His Lys  
 20 25 30

Val Phe Gly Glu Ser Val Ala Ile Leu Ser Gly Gly Ala Leu Leu Ala  
 35 40 45

Leu Ala Phe Glu His Leu Thr Glu Ala Asp Val Ser Ser Lys Lys Met  
 50 55 60

Val Arg Ala Val Lys Glu Leu Ala Lys Ser Ile Gly Thr Lys Gly Leu  
 65 70 75 80

Val Ala Gly Gln Ala Lys Asp Leu Ser Ser Glu Gly Leu Glu Gln Asn  
 85 90 95

Asp Val Gly Leu Glu Asp Leu Glu Tyr Ile His Val His Lys Thr Gly  
 100 105 110

Ser Leu Leu Glu Ala Ser Ala Val Ile Gly Ala Val Ile Gly Gly Gly  
 115 120 125

Thr Glu Lys Glu Ile Glu Lys Val Arg Asn Phe Ala Arg Cys Ile Gly  
 130 135 140

Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr  
 145 150 155

<210> 58  
 <211> 425  
 <212> PRT  
 <213> Streptomyces griseus

<400> 58

Met Gly Arg Arg Gln Pro Thr Lys His Ser Phe Ser Asp Ser Pro Arg  
 1 5 10 15

Pro Ala His Asp Val Arg Gly Gly Arg His His Thr Pro Ser Ser Glu  
 20 25 30

Asp Ala Arg Val Val Asp Ser Asp Val Val Gly Ser Val Leu Arg Thr  
 35 40 45  
 Ala Arg Ala Val Leu Ala Asp Arg Ile Asp Glu Ala Val Arg Ser Asp  
 50 55 60  
 Ala Ser Phe Cys Glu Glu Leu Ala Arg Arg Val Ala Asp Phe Thr Leu  
 65 70 75 80  
 Glu Gly Gly Lys Arg Met Arg Pro Arg Leu Leu Trp Trp Gly Met Arg  
 85 90 95  
 Ser Cys Gly Ala Ala Glu Thr Ala Ala Ala Leu Arg Leu Gly Val Ala  
 100 105 110  
 Leu Glu Leu Ile Gln Ser Cys Ala Leu Ile His Asp Asp Val Met Asp  
 115 120 125  
 Arg Ser Arg Leu Arg Arg Gly Lys Pro Ala Met His Ile Gly Leu Ala  
 130 135 140  
 Glu Arg Ala Gly Leu Ser Pro Asp Ser Glu Arg Gly Ser Asp Phe Gly  
 145 150 155 160  
 Ala Ser Ala Ala Val Leu Ala Gly Asp Leu Ala Leu Val Trp Ala Asp  
 165 170 175  
 Asp Thr Val Ala Glu Thr Val Leu Ser Ala Ala Gln Arg Arg Arg Ile  
 180 185 190  
 Gly Ala Leu Trp Arg Ala Met Arg Thr Glu Met Val Ala Gly Gln Tyr  
 195 200 205  
 Leu Asp Leu Arg Gly Gln Leu Ser Gly Gly Ser Ser Val Ala Gln Ala  
 210 215 220  
 Leu Arg Thr Ala Cys Leu Lys Ser Ala Ser Tyr Ser Val Glu Arg Pro  
 225 230 235 240  
 Leu Ala Ile Gly Ala Ala Leu Ala Gly Ala Asp Asp Arg Thr Thr Asp  
 245 250 255  
 Ala Leu Arg Ser Ala Gly Arg Cys Ala Gly Ile Ala Phe Gln Leu Arg  
 260 265 270

Asp Asp Leu Leu Gly Val Phe Gly Asp Pro Ala Leu Thr Gly Lys Pro  
275 280 285

Ser Gly Asp Asp Ile Arg Glu Gly Lys Ser Thr Tyr Leu Leu Ala Val  
290 295 300

Ala Arg Asn Ser Ala Glu Ala Ser Gly Asp Glu Gln Ala Leu Ala Val  
305 310 315 320

Leu Gly Arg Ala Thr Gly Asn Ala Asp Leu Thr Glu Glu Asp Leu Ala  
325 330 335

Asp Val Arg Gly Val Leu Glu Val Thr Gly Ala Arg Ala His Val Glu  
340 345 350

Arg Lys Ala Glu His Leu Arg Asp His Ala Val Arg Arg Leu Gly Gln  
355 360 365

Ala Val Asp Val Asp Ala His Gly Gly Arg Gln Leu Leu Gly Leu Leu  
370 375 380

Arg Thr Val Ser Gly Glu Arg Thr Ala His Ser Pro Thr Thr Ala Gly  
385 390 395 400

Glu Thr His Gly Gly Gly Thr Gly Val Ala Gly Ala Ser Pro Val Leu  
405 410 415

Met Thr Thr Glu Gly Gly Asn Ala Gly  
420 425

<210> 59  
<211> 316  
<212> PRT  
<213> Lupinus albus

<400> 59

Met Leu Thr Lys Glu Asp Thr Val Lys Asp Lys Glu Glu Glu Glu Glu  
1 5 10 15

Glu Glu Glu Lys Pro Arg Phe Asn Phe Asn Leu Tyr Met Val Glu Lys  
20 25 30

Ser Arg Ser Val Asn Gln Ala Leu Asn Asp Ala Val Ser Leu Arg Glu  
35 40 45

Pro His Lys Ile His Glu Ala Met Arg Tyr Ser Leu Leu Ala Gly Gly

50					55					60					
Lys	Arg	Val	Arg	Pro	Val	Leu	Cys	Ile	Ala	Ala	Cys	Glu	Val	Val	Gly
65					70					75					80
Gly	Asn	Glu	Ser	Thr	Ala	Met	Ala	Ala	Ala	Cys	Ser	Ile	Glu	Met	Ile
				85					90					95	
His	Thr	Met	Ser	Leu	Ile	His	Asp	Asp	Leu	Pro	Cys	Met	Asp	Asn	Asp
			100					105					110		
Asp	Leu	Arg	Arg	Gly	Lys	Pro	Thr	Asn	His	Lys	Val	Phe	Gly	Glu	Asn
		115					120					125			
Ile	Ala	Val	Leu	Ala	Gly	Asp	Ala	Leu	Leu	Ala	Phe	Ala	Phe	Glu	His
	130					135					140				
Ile	Ala	Val	Ser	Thr	Ser	Gly	Val	Ser	Pro	Glu	Arg	Ile	Ile	Gly	Ala
145					150					155					160
Ile	Gly	Glu	Leu	Ala	Lys	Ser	Ile	Gly	Thr	Glu	Gly	Leu	Val	Ala	Gly
				165					170					175	
Gln	Val	Val	Asp	Ile	Asn	Ser	Glu	Gly	Leu	Cys	Asp	Ile	Gly	Leu	Glu
			180					185					190		
Lys	Leu	Glu	Phe	Ile	His	Leu	His	Lys	Thr	Ala	Ala	Leu	Leu	Glu	Gly
		195					200					205			
Ser	Val	Val	Val	Gly	Ala	Ile	Leu	Gly	Gly	Gly	Cys	Asn	Glu	Glu	Val
	210					215					220				
Glu	Lys	Leu	Arg	Met	Phe	Ala	Arg	Tyr	Ile	Gly	Leu	Met	Phe	Gln	Val
225					230					235					240
Val	Asp	Asp	Val	Leu	Asp	Val	Thr	Lys	Ser	Ser	Lys	Glu	Leu	Gly	Lys
				245					250					255	
Thr	Ala	Gly	Lys	Asp	Leu	Val	Ala	Asp	Lys	Val	Thr	Tyr	Pro	Lys	Leu
			260					265					270		
Leu	Gly	Ile	Glu	Lys	Ser	Asn	Glu	Phe	Ala	Gln	Lys	Leu	Asn	Arg	Asp
		275					280					285			
Ala	Gln	Glu	Gln	Leu	Ser	Gly	Phe	Asp	Pro	Val	Lys	Val	Ala	Pro	Leu
	290					295					300				

Ile Ala Leu Ala Asn Tyr Ile Ala Tyr Ser Pro Asn  
 305 310 315

<210> 60  
 <211> 326  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 60

Met Leu Phe Ser Gly Ser Ala Ile Pro Leu Ser Ser Phe Cys Ser Leu  
 1 5 10 15

Pro Glu Lys Pro His Thr Leu Pro Met Lys Leu Ser Pro Ala Ala Ile  
 20 25 30

Arg Ser Ser Ser Ser Ser Ala Pro Gly Ser Leu Asn Phe Asp Leu Arg  
 35 40 45

Thr Tyr Trp Thr Thr Leu Ile Thr Glu Ile Asn Gln Lys Leu Asp Glu  
 50 55 60

Ala Ile Pro Val Lys His Pro Ala Gly Ile Tyr Glu Ala Met Arg Tyr  
 65 70 75 80

Ser Val Leu Pro Gln Gly Pro Lys Arg Ala Pro Pro Val Met Cys Val  
 85 90 95

Ala Ala Cys Glu Leu Phe Gly Gly Asp Arg Leu Ala Ala Phe Pro Thr  
 100 105 110

Ala Cys Ala Leu Glu Met Val His Ala Ala Ser Leu Ile His Asp Asp  
 115 120 125

Leu Pro Cys Met Asp Asp Asp Pro Val Arg Arg Gly Lys Pro Ser Asn  
 130 135 140

His Thr Val Tyr Gly Ser Gly Met Ala Ile Leu Ala Gly Asp Ala Leu  
 145 150 155 160

Phe Pro Leu Ala Phe Gln His Ile Val Ser His Thr Pro Pro Asp Leu  
 165 170 175

Val Pro Arg Ala Thr Ile Leu Arg Leu Ile Thr Glu Ile Ala Arg Thr  
 180 185 190

Val Gly Ser Thr Gly Met Ala Ala Gly Gln Tyr Val Asp Leu Glu Gly  
 195 200 205

Gly Pro Phe Pro Leu Ser Phe Val Gln Glu Lys Lys Phe Gly Ala Met  
 210 215 220

Gly Glu Cys Ser Ala Val Cys Gly Gly Leu Leu Gly Gly Ala Thr Glu  
 225 230 235 240

Asp Glu Leu Gln Ser Leu Arg Arg Tyr Gly Arg Ala Val Gly Met Leu  
 245 250 255

Tyr Gln Val Val Asp Asp Ile Thr Glu Asp Lys Lys Lys Ser Tyr Asp  
 260 265 270

Gly Gly Ala Glu Lys Gly Met Met Glu Met Ala Glu Glu Leu Lys Glu  
 275 280 285

Lys Ala Lys Lys Glu Leu Gln Val Phe Asp Asn Lys Tyr Gly Gly Gly  
 290 295 300

Asp Thr Leu Val Pro Leu Tyr Thr Phe Val Asp Tyr Ala Ala His Arg  
 305 310 315 320

His Phe Leu Leu Pro Leu  
 325

<210> 61  
 <211> 300  
 <212> PRT  
 <213> Cyanophora paradoxa

<400> 61

Met Lys Pro Leu Gln Thr Asn Phe Asn Leu Leu Thr Tyr Leu Tyr Glu  
 1 5 10 15

Arg Lys Glu Ile Val Glu Asp Thr Leu Asn Lys Ser Ile Pro Arg Gly  
 20 25 30

Asn Pro Thr Phe Ile Tyr Asp Ser Ile Arg Tyr Ser Leu Ser Ala Gly  
 35 40 45

Gly Lys Arg Ile Arg Pro Ile Leu Cys Leu Ala Ser Cys Glu Leu Ala  
 50 55 60

Gly Gly Thr Met Glu Met Ala Leu Pro Thr Ala Cys Ala Leu Glu Met  
 65 70 75 80



Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Ala Met Asp Asn  
85 90 95

Asp Ser Tyr Arg Arg Gly Lys Pro Thr Asn His Ile Ile Tyr Gly Glu  
100 105 110

Asp Leu Ala Ile Leu Ala Gly Asp Ala Leu Leu Ala Tyr Ala Phe Glu  
115 120 125

Phe Ile Ala Thr Gln Thr Lys Asn Val Pro Ala Asp Leu Ile Val Lys  
130 135 140

Val Ile Ala Gln Val Ala His Ser Val Thr Thr Ser Gly Leu Val Gly  
145 150 155 160

Gly Gln Ile Ile Asp Leu Ser Ser Glu Gly Lys Ser Asp Thr Thr Leu  
165 170 175

Glu Thr Leu Asn Phe Ile His Ile His Lys Thr Gly Ala Leu Leu Glu  
180 185 190

Ala Ala Val Leu Ser Gly Ala Leu Leu Ala Gly Ala Lys Glu Lys Asp  
195 200 205

Met Asn Arg Phe Leu Arg Tyr Ala Gln Asn Ile Gly Leu Ala Phe Gln  
210 215 220

Ile Ile Asp Asp Val Leu Asp Ile Ile Ser Thr Glu Glu Lys Leu Gly  
225 230 235 240

Lys Ser Ile Gly Lys Asp Leu Lys Thr Gln Lys Ala Thr Tyr Pro Ser  
245 250 255

Phe Trp Gly Val Glu Glu Ser Ile Lys Gln Ala Glu Leu Leu Val Glu  
260 265 270

Glu Ala Lys Glu Glu Ile Leu Tyr Phe Asp Asn Lys Ala Ile Pro Leu  
275 280 285

Ile Ala Ile Ala Asp Phe Ile Val Asn Arg Asn Asn  
290 295 300

<210> 62  
<211> 371  
<212> PRT

<213> Arabidopsis thaliana

<400> 62

Met Ala Ser Val Thr Leu Gly Ser Trp Ile Val Val His His His Asn  
1 5 10 15

His His His Pro Ser Ser Ile Leu Thr Lys Ser Arg Ser Arg Ser Cys  
20 25 30

Pro Ile Thr Leu Thr Lys Pro Ile Ser Phe Arg Ser Lys Arg Thr Val  
35 40 45

Ser Ser Ser Ser Ser Ile Val Ser Ser Ser Val Val Thr Lys Glu Asp  
50 55 60

Asn Leu Arg Gln Ser Glu Pro Ser Ser Phe Asp Phe Met Ser Tyr Ile  
65 70 75 80

Ile Thr Lys Ala Glu Leu Val Asn Lys Ala Leu Asp Ser Ala Val Pro  
85 90 95

Leu Arg Glu Pro Leu Lys Ile His Glu Ala Met Ser Tyr Ser Leu Leu  
100 105 110

Ala Gly Gly Lys Arg Val Arg Pro Val Leu Cys Ile Ala Ala Cys Glu  
115 120 125

Leu Val Gly Gly Glu Glu Ser Thr Ala Met Pro Ala Arg Cys Ala Val  
130 135 140

Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Cys Met  
145 150 155 160

Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Phe  
165 170 175

Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ala Leu Leu Ser Phe Ser  
180 185 190

Phe Glu His Leu Ala Ser Ala Thr Ser Ser Asp Val Val Ser Pro Val  
195 200 205

Arg Val Val Arg Ala Val Gly Glu Leu Ala Lys Ala Ile Gly Thr Glu  
210 215 220

Gly Leu Val Ala Gly Gln Val Val Asp Ile Ser Ser Glu Gly Leu Asp

225                      230                      235                      240  
 Leu Asn Asp Val Gly Leu Glu His Leu Glu Phe Ile His Leu His Lys  
                                  245                                   250                                   255  
 Thr Ala Ala Leu Leu Glu Ala Ser Ala Val Leu Gly Ala Ile Val Gly  
                                  260                                   265                                   270  
 Gly Gly Ser Asp Asp Glu Ile Glu Arg Leu Arg Lys Phe Ala Arg Cys  
                                  275                                   280                                   285  
 Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys  
                                  290                                   295                                   300  
 Ser Ser Lys Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Ile Ala Asp  
 305                                   310                                   315                                   320  
 Lys Leu Thr Tyr Pro Lys Ile Met Gly Leu Glu Lys Ser Arg Glu Phe  
                                  325                                   330                                   335  
 Ala Glu Lys Leu Asn Arg Glu Ala Arg Asp Gln Leu Leu Gly Phe Asp  
                                  340                                   345                                   350  
 Ser Asp Lys Val Ala Pro Leu Leu Ala Leu Ala Asn Tyr Ile Ala Tyr  
                                  355                                   360                                   365

Arg Gln Asn  
370

<210> 63  
 <211> 344  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 63

Met Glu Asn Arg Glu Val Phe Val Tyr Ile Val Ile Ser Ile Phe Arg  
 1                                   5                                   10                                   15  
 Ser Leu Gln Phe Leu Phe Trp Arg Phe Arg Pro Arg Tyr Asn Asp Val  
                                  20                                   25                                   30  
 Thr Ser Ala Leu Thr Arg Pro Leu Thr Ser Ala Ala Ser Tyr Asp Phe  
                                  35                                   40                                   45  
 Lys Phe Met Ser Tyr Met Val Asn Lys Ala Lys Ser Val Asn Lys Ala  
                                  50                                   55                                   60

Leu Glu Glu Ala Val Pro Leu Arg Glu Pro Glu Leu Lys Ile Arg Glu  
65 70 75 80

Ala Met Arg Tyr Thr Leu Leu Ser Asp Gly Lys Arg Val Arg Pro Met  
85 90 95

Leu Cys Leu Ala Ala Cys Glu Leu Val Gly Gly Gln Glu Ser Thr Ala  
100 105 110

Met Ser Ala Ala Cys Ala Ile Glu Met Leu His Ala Ser Ser Leu Ile  
115 120 125

Leu Asp Asp Leu Pro Cys Met Asp Asn Asp Ser Leu Arg Arg Gly Lys  
130 135 140

Pro Thr Asn His Ile Val Phe Gly Glu Ser Ile Ala Ile Leu Ala Ser  
145 150 155 160

Gln Ala Leu Ile Ala Leu Ala Val Gln Lys Thr Thr Ser Ser Thr Phe  
165 170 175

Ala Asp Val Pro Pro Glu Arg Ile Leu Lys Thr Val Gln Glu Met Val  
180 185 190

Lys Ala Val Glu Gly Leu Val Ala Gly Gln Gln Ala Asp Leu Ala Gly  
195 200 205

Glu Gly Met Arg Phe Asp Ser Asp Thr Gly Leu Glu His Leu Glu Phe  
210 215 220

Ile His Ile His Lys Thr Ala Ala Leu Leu Glu Ala Ala Ala Val Met  
225 230 235 240

Gly Ala Ile Met Gly Gly Gly Ser Asp Glu Glu Ile Glu Arg Leu Arg  
245 250 255

Ser Tyr Ala Arg Cys Ile Gly Leu Met Phe Gln Val Val Asp Asp Val  
260 265 270

Leu Asp Val Thr Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly Lys  
275 280 285

Asp Leu Ile Ala Gly Lys Leu Thr Tyr Pro Arg Leu Met Gly Val Glu  
290 295 300

Lys Ser Lys Glu Tyr Ala Glu Arg Leu Asn Ile Glu Ala Arg Glu His  
 305 310 315 320

Leu Leu Gly Phe Asp Ile Asp Lys Val Ala Pro Leu Val Ser Leu Ala  
 325 330 335

Asp Tyr Ile Val Asn Arg Gln Asn  
 340

<210> 64  
 <211> 343  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 64

Met Leu Cys Lys Ile Ile Ile Met Arg Pro Cys Tyr Ser Leu Val Leu  
 1 5 10 15

Ser Ala Met Arg Leu Ile Arg Pro Ser Asn Arg Arg Leu Ser Ser Ile  
 20 25 30

Ala Ser Ser Asp Ser Glu Phe Ile Ser Tyr Met Asn Asn Lys Ala Lys  
 35 40 45

Ser Ile Asn Lys Ala Leu Asp Asn Ser Ile Pro Leu Cys Asn Asn Ser  
 50 55 60

Val Pro Leu Trp Glu Pro Val Leu Glu Val His Lys Ala Met Arg Tyr  
 65 70 75 80

Thr Leu Leu Ser Gly Gly Lys Arg Val Arg Pro Met Leu Cys Leu Val  
 85 90 95

Ala Cys Glu Leu Val Gly Gly Gln Glu Ser Thr Ala Met Pro Ala Ala  
 100 105 110

Cys Ala Val Glu Met Ile His Ala Ala Ser Leu Ile Leu Asp Asp Leu  
 115 120 125

Pro Cys Met Asp Asp Asp Ser Leu Arg Arg Gly Ile Pro Thr Asn His  
 130 135 140

Lys Val Phe Gly Glu Lys Thr Ser Ile Leu Ala Ser Asn Ala Leu Met  
 145 150 155 160

Ser Leu Ala Val Lys Gln Thr Leu Ala Ser Thr Ser Leu Gly Val Thr  
 165 170 175

Ser Glu Arg Val Leu Arg Ala Val Gln Glu Met Ala Arg Ala Val Gly  
180 185 190

Thr Glu Gly Leu Val Ala Gly Gln Ala Ala Asp Leu Ala Gly Glu Arg  
195 200 205

Met Ser Phe Lys Asn Glu Asp Asp Glu Leu Arg Tyr Leu Glu Leu Met  
210 215 220

His Val His Lys Thr Ala Val Leu Val Glu Ala Ala Ala Val Val Gly  
225 230 235 240

Ala Ile Met Gly Gly Gly Ser Asp Glu Glu Ile Glu Arg Leu Lys Ser  
245 250 255

Tyr Ala Arg Cys Val Gly Leu Met Phe Gln Val Met Asp Asp Val Leu  
260 265 270

Asp Glu Thr Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly Lys Asp  
275 280 285

Leu Ile Thr Gly Lys Leu Thr Tyr Pro Lys Val Met Gly Val Asp Asn  
290 295 300

Ala Arg Glu Tyr Ala Lys Arg Leu Asn Arg Glu Ala Gln Glu His Leu  
305 310 315 320

Gln Gly Phe Asp Ser Asp Lys Val Val Pro Leu Leu Ser Leu Ala Asp  
325 330 335

Tyr Ile Val Lys Arg Gln Asn  
340

<210> 65  
<211> 336  
<212> PRT  
<213> Arabidopsis thaliana

<400> 65

Met Arg Pro Arg Tyr Ser Leu Ile Leu Ser Ala Met Arg Leu Ile Arg  
1 5 10 15

Pro Ser Asn Arg Arg Leu Ser Ser Ile Ala Ser Ser Asp Ser Glu Phe  
20 25 30

Ile Ser Tyr Met Lys Asn Lys Ala Lys Ser Ile Asn Lys Ala Leu Asp  
 35 40 45  
 Asn Ser Ile Pro Leu Cys Asn Asn Phe Val Pro Leu Trp Glu Pro Val  
 50 55 60  
 Leu Glu Val His Lys Ala Met Arg Tyr Thr Leu Leu Pro Gly Gly Lys  
 65 70 75 80  
 Arg Val Arg Pro Met Leu Cys Leu Val Ala Cys Glu Leu Val Gly Gly  
 85 90 95  
 Gln Glu Ser Thr Ala Met Pro Ala Ala Cys Ala Val Glu Met Ile His  
 100 105 110  
 Ala Ala Ser Leu Ile Leu Asp Asp Leu Pro Cys Met Asp Asp Asp Ser  
 115 120 125  
 Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Phe Gly Glu Lys Thr  
 130 135 140  
 Ser Ile Leu Ala Ser Asn Ala Leu Arg Ser Leu Ala Val Lys Gln Thr  
 145 150 155 160  
 Leu Ala Ser Thr Ser Leu Gly Val Thr Ser Glu Arg Val Leu Arg Ala  
 165 170 175  
 Val Gln Glu Met Ala Arg Ala Val Gly Thr Glu Gly Leu Val Ala Gly  
 180 185 190  
 Gln Ala Ala Asp Leu Ala Gly Glu Arg Met Ser Phe Lys Asn Glu Asp  
 195 200 205  
 Asp Glu Leu Arg Tyr Leu Glu Leu Met His Val His Lys Thr Ala Val  
 210 215 220  
 Leu Val Glu Ala Ala Ala Val Val Gly Ala Ile Met Gly Gly Gly Ser  
 225 230 235 240  
 Asp Glu Glu Ile Glu Arg Leu Lys Ser Tyr Ala Arg Cys Val Gly Leu  
 245 250 255  
 Met Phe Gln Val Met Asp Asp Val Leu Asp Glu Thr Lys Ser Ser Glu  
 260 265 270  
 Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Ile Thr Gly Lys Leu Thr

275	280	285
Tyr Pro Lys Val Met Gly Val Asp Asn Ala Arg Glu Tyr Ala Lys Arg		
290	295	300
Leu Asn Arg Glu Ala Gln Glu His Leu Gln Gly Phe Asp Ser Asp Lys		
305	310	315
Val Val Pro Leu Leu Ser Leu Ala Asp Tyr Ile Val Lys Arg Gln Asn		
325	330	335
<210> 66		
<211> 300		
<212> PRT		
<213> Cyanophora paradoxa		
<400> 66		
Met Lys Pro Leu Gln Thr Asn Phe Asn Leu Leu Thr Tyr Leu Tyr Glu		
1	5	10
Arg Lys Glu Ile Val Glu Asp Thr Leu Asn Lys Ser Ile Pro Arg Gly		
20	25	30
Asn Pro Thr Phe Ile Tyr Asp Ser Ile Arg Tyr Ser Leu Ser Ala Gly		
35	40	45
Gly Lys Arg Ile Arg Pro Ile Leu Cys Leu Ala Ser Cys Glu Leu Ala		
50	55	60
Gly Gly Thr Met Glu Met Ala Leu Pro Thr Ala Cys Ala Leu Glu Met		
65	70	75
Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Ala Met Asp Asn		
85	90	95
Asp Ser Tyr Arg Arg Gly Lys Pro Thr Asn His Ile Ile Tyr Gly Glu		
100	105	110
Asp Leu Ala Ile Leu Ala Gly Asp Ala Leu Leu Ala Tyr Ala Phe Glu		
115	120	125
Phe Ile Ala Thr Gln Thr Lys Asn Val Pro Ala Asp Leu Ile Val Lys		
130	135	140
Val Ile Ala Gln Val Ala His Ser Val Thr Thr Ser Gly Leu Val Gly		
145	150	155
		160



Gly Gln Ile Ile Asp Leu Ser Ser Glu Gly Lys Ser Asp Thr Thr Leu  
165 170 175

Glu Thr Leu Asn Phe Ile His Ile His Lys Thr Gly Ala Leu Leu Glu  
180 185 190

Ala Ala Val Leu Ser Gly Ala Leu Leu Ala Gly Ala Lys Glu Lys Asp  
195 200 205

Met Asn Arg Phe Leu Arg Tyr Ala Gln Asn Ile Gly Leu Ala Phe Gln  
210 215 220

Ile Ile Asp Asp Val Leu Asp Ile Ile Ser Thr Glu Glu Lys Leu Gly  
225 230 235 240

Lys Ser Ile Gly Lys Asp Leu Lys Thr Gln Lys Ala Thr Tyr Pro Ser  
245 250 255

Phe Trp Gly Val Glu Glu Ser Ile Lys Gln Ala Glu Leu Leu Val Glu  
260 265 270

Glu Ala Lys Glu Glu Ile Leu Tyr Phe Asp Asn Lys Ala Ile Pro Leu  
275 280 285

Ile Ala Ile Ala Asp Phe Ile Val Asn Arg Asn Asn  
290 295 300

<210> 67  
<211> 376  
<212> PRT  
<213> Oryza sativa

<400> 67

Met His Val Leu Ala Gln Ser Thr Ala Val Ala Lys Val Ala Ala Ser  
1 5 10 15

Gly Cys Leu Arg Arg Ser Pro Asn Pro Ser Val Thr Phe Gln Arg Ser  
20 25 30

Pro Ser Leu Leu Leu Ser Pro Ala Ala Cys Arg Arg Arg Cys Arg Arg  
35 40 45

Gly Cys Ser Val Ser Val Asp Val Arg Cys Ser Leu Gly Ala Met Val  
50 55 60

Thr Pro Glu Leu Asn Gly Gly Asp Val Gly Val Gly Val Gly Gly Gly

65					70						75					80
Ser	Phe	Asp	Phe	Gln	Arg	Tyr	Leu	Ser	Ala	Arg	Ala	Asp	Ala	Val	His	
				85					90					95		
Asp	Ala	Leu	Asp	Arg	Ala	Met	Pro	Arg	Gly	Phe	Pro	Glu	Arg	Leu	Cys	
			100					105					110			
Glu	Ser	Met	Arg	Tyr	Ser	Val	Leu	Ala	Gly	Gly	Lys	Arg	Val	Arg	Pro	
		115					120					125				
Val	Leu	Ala	Leu	Ala	Ala	Cys	Glu	Leu	Val	Gly	Gly	Asp	Ala	Ala	Ala	
	130					135						140				
Ala	Thr	Pro	Val	Ala	Cys	Ala	Val	Glu	Met	Ile	His	Thr	Met	Ser	Leu	
145					150					155					160	
Ile	His	Asp	Asp	Met	Pro	Cys	Met	Asp	Asp	Asp	Ala	Leu	Arg	Arg	Gly	
				165					170					175		
Arg	Pro	Ser	Asn	His	Val	Ala	Phe	Gly	Glu	Phe	Thr	Ala	Leu	Leu	Ala	
			180					185					190			
Gly	Asp	Ala	Leu	His	Ala	Leu	Ala	Phe	Glu	His	Val	Ala	Arg	Gly	Cys	
		195					200					205				
Gly	Asp	His	Gly	Val	Pro	Ala	Asp	Arg	Thr	Leu	Arg	Ala	Val	Ala	Glu	
	210					215					220					
Leu	Gly	Ser	Ala	Ser	Gly	Thr	Gly	Gly	Val	Ala	Ala	Gly	Gln	Val	Ala	
225					230					235					240	
Asp	Lys	Glu	Ser	Glu	Gly	Leu	Pro	Val	Ser	Leu	Ala	Met	Leu	Glu	Tyr	
				245					250					255		
Ile	His	Val	His	Lys	Thr	Ala	Arg	Leu	Leu	Glu	Ala	Ala	Ala	Val	Ser	
			260					265					270			
Gly	Ala	Ile	Val	Gly	Gly	Gly	Ala	Asp	Ala	Glu	Val	Glu	Arg	Val	Arg	
	275						280					285				
Arg	Tyr	Ala	Arg	Cys	Val	Gly	Leu	Leu	Phe	Gln	Val	Val	Asp	Asp	Val	
	290					295					300					
Leu	Asp	Met	Thr	Ser	Thr	Ser	Glu	Gln	Leu	Gly	Lys	Thr	Ala	Gly	Lys	
305					310					315					320	

Asp Val Glu Ala Asp Lys Ala Thr Tyr Pro Lys Leu Leu Gly Val Asp  
325 330 335

Lys Ala Arg Glu Tyr Ala Ala Asp Leu Leu Ala Met Ala Glu Ala Glu  
340 345 350

Leu Asp Gly Phe Asp Ala Glu Arg Ala Ala Pro Leu Arg His Leu Ala  
355 360 365

Arg Phe Ile Ala Tyr Arg Gln His  
370 375

<210> 68  
<211> 292  
<212> PRT  
<213> Chlamydia muridarum

<400> 68

Met Asp Asp Phe Asn Val Tyr Arg Ser Lys Ile Glu Lys Arg Leu Arg  
1 5 10 15

Asp Ser Leu Glu Asp Phe Gly Lys Thr Gln Ser Gly Leu Arg Asn Pro  
20 25 30

Ile Glu Tyr Ala Leu Leu Gly Gly Gly Lys Arg Val Arg Pro Leu Leu  
35 40 45

Val Cys Leu Phe Ala Asp Ser Ile Gln Lys Arg Arg Asp Val Leu Asp  
50 55 60

Thr Ala Ile Ala Val Glu Tyr Ile His Thr Ser Thr Leu Ile Ala Asp  
65 70 75 80

Asp Leu Pro Cys Met Asp Asn Asp Asp Met Arg Arg Gly Lys Pro Ser  
85 90 95

Val His Lys Ala Phe Asp Glu Ala Ser Ala Leu Leu Ala Ser Tyr Ala  
100 105 110

Leu Ile Pro Ala Ala Tyr Ala Arg Ile Arg Lys Asn Ala Lys Ala Leu  
115 120 125

Lys Glu Val Val Ser Val Gln Arg Glu Ile Glu Asp Ala Tyr Glu Asp  
130 135 140

Val Leu Asp Leu Ile Glu Leu Arg Phe Gly Val Glu Gly Val Leu Gly  
145 150 155 160

Gly Gln Tyr Glu Asp Val Phe Phe Gln Ser Phe Thr Glu Glu Ser Val  
165 170 175

Ile Asn Ile Ile Asn Lys Lys Thr Ser Ala Leu Phe Glu Ile Ala Cys  
180 185 190

Val Ser Gly Trp Leu Phe Gly Gly Gly Ala Arg Glu Lys Thr Pro Leu  
195 200 205

Val Ile Glu Phe Ala Arg Asn Phe Gly Ile Leu Phe Gln Ile Gly Asp  
210 215 220

Asp Leu Ala Asp Leu Ser Gln Asp Asn Gln Glu Glu Lys His Met Asn  
225 230 235 240

Tyr Ala Leu Leu Phe Gly Glu Gln Ala Ala Lys Asp Leu Leu Asn Arg  
245 250 255

Ser Phe Asn Ser Cys Ile Glu Ile Leu His Leu Leu Lys Glu Lys Gly  
260 265 270

Val Lys Pro Leu Glu Glu Leu Cys Lys Lys Val Phe Met Gly Gly Asn  
275 280 285

Lys His Ser Leu  
290

<210> 69

<211> 392

<212> PRT

<213> Streptomyces coelicolor

<400> 69

Met Arg Thr Thr Glu Ser Glu Lys Gly Leu Arg Met Pro Gly Leu Pro  
1 5 10 15

Pro Met Val Ala Pro Pro Ala Glu Gln Val Asp Asp Pro Val Thr Ala  
20 25 30

Thr Asp Ala Ala Asn Ala Val Asp Ala Val Leu Arg Gly Val Leu Asp  
35 40 45

Glu Arg Leu Arg His Cys Arg Ala Val Asp Pro Leu Phe Ala Arg Glu  
50 55 60

Leu Ala Asp Arg Leu Ala Ala Leu Thr Ala Arg Gly Gly Lys Arg Leu  
65 70 75 80

Arg Thr Ala Phe Ala His Cys Gly Trp Arg Ala Ala Gly Gly Ser Gly  
85 90 95

Asp Ala Thr Ala Val Leu Arg Thr Gly Ala Ala Leu Glu Leu Leu Gln  
100 105 110

Ala Cys Ala Leu Val His Asp Asp Val Met Asp Gly Ser Val Gln Arg  
115 120 125

Arg Gly Ala Pro Ala Leu His Val Asp Leu Ala Arg Gly His Trp Ala  
130 135 140

Ala Gly Met His Gly Ser Ser Glu Ser Phe Gly Thr Ser Ala Ala Val  
145 150 155 160

Leu Thr Gly Asp Leu Ala Leu Ala Trp Ala Asp Asp Leu Leu Thr Glu  
165 170 175

Thr Ala Leu Gly Thr Pro His Gly Pro Arg Leu His Gly Glu Trp Arg  
180 185 190

Ala Met Arg Thr Glu Met Val Ala Gly Gln Tyr Arg Asp Leu His Ala  
195 200 205

Gln Ala Ala Arg Ser Ser Gly Val Asp Glu Ala Leu Ala Ile Ala Thr  
210 215 220

Leu Lys Ser Ala Leu Tyr Thr Val Ala Arg Pro Leu Ala Leu Gly Ala  
225 230 235 240

Val Leu Ala Gly Ala Ala Asp Gly Asp Ala Leu Glu Ala Leu Arg Ala  
245 250 255

Ala Gly Arg Cys Ala Gly Leu Ala Phe Gln Leu Arg Asp Asp Leu Leu  
260 265 270

Gly Ala Phe Gly Asp Pro Ala Leu Thr Gly Lys Pro Ala Asp Asp Asp  
275 280 285

Leu Arg Ser Arg Lys Leu Thr Tyr Leu Leu Ala Val Ala Val Arg Leu  
290 295 300

Ala Asp Ala Ala Asp Asp His Leu Ala Ala Ala Ala Leu Ala Pro Asp  
 305 310 315 320

Ala Asp Pro Lys Ser Glu Lys Ala Val Arg Gln Val Arg Ser Ala Leu  
 325 330 335

Val Arg Thr Gly Ala Arg Asp Leu Val Glu Thr Lys Ile Gly Glu Leu  
 340 345 350

Thr Asp Met Ser Leu Ala His Phe Asp Arg Cys Gly Ala Arg Pro Ala  
 355 360 365

Val Arg His Glu Phe Ala Ala Leu Ile Gly Arg Ala Thr Gly Ala Val  
 370 375 380

Pro Arg Gly Thr Gly Glu Val Val  
 385 390

<210> 70  
 <211> 323  
 <212> PRT  
 <213> Synechocystis sp

<400> 70

Met Ile Ser Thr Thr Ser Leu Phe Ala Pro Val Asp Gln Asp Leu Arg  
 1 5 10 15

Leu Leu Thr Asp Asn Leu Lys Arg Leu Val Gly Ala Arg His Pro Ile  
 20 25 30

Leu Gly Ala Ala Ala Glu His Leu Phe Glu Ala Gly Gly Lys Arg Val  
 35 40 45

Arg Pro Ala Ile Val Leu Leu Val Ser Arg Ala Thr Leu Leu Asp Gln  
 50 55 60

Glu Leu Thr Ala Arg His Arg Arg Leu Ala Glu Ile Thr Glu Met Ile  
 65 70 75 80

His Thr Ala Ser Leu Val His Asp Asp Val Val Asp Glu Ala Asp Leu  
 85 90 95

Arg Arg Asn Val Pro Thr Val Asn Ser Leu Phe Asp Asn Arg Val Ala  
 100 105 110

Val Leu Ala Gly Asp Phe Leu Phe Ala Gln Ser Ser Trp Tyr Leu Ala

115		120		125
Asn Leu Asp Asn Leu Glu Val Val Lys Leu Leu Ser Glu Val Ile Arg				
130		135		140
Asp Phe Ala Glu Gly Glu Ile Leu Gln Ser Ile Asn Arg Phe Asp Thr				
145		150		155
Asp Thr Asp Leu Glu Thr Tyr Leu Glu Lys Ser Tyr Phe Lys Thr Ala				
	165		170	175
Ser Leu Ile Ala Asn Ser Ala Lys Ala Ala Gly Val Leu Ser Asp Ala				
	180		185	190
Pro Arg Asp Val Cys Asp His Leu Tyr Glu Tyr Gly Lys His Leu Gly				
	195		200	205
Leu Ala Phe Gln Ile Val Asp Asp Ile Leu Asp Phe Thr Ser Pro Thr				
	210		215	220
Glu Val Leu Gly Lys Pro Ala Gly Ser Asp Leu Ile Ser Gly Asn Ile				
225		230		235
Thr Ala Pro Ala Leu Phe Ala Met Glu Lys Tyr Pro Leu Leu Gly Lys				
	245		250	255
Leu Ile Glu Arg Glu Phe Ala Gln Ala Gly Asp Leu Glu Gln Ala Leu				
	260		265	270
Glu Leu Val Glu Gln Gly Asp Gly Ile Arg Arg Ser Arg Glu Leu Ala				
	275		280	285
Ala Asn Gln Ala Gln Leu Ala Arg Gln His Leu Ser Val Leu Glu Met				
	290		295	300
Ser Ala Pro Arg Glu Ser Leu Leu Glu Leu Val Asp Tyr Val Leu Gly				
305		310		315
				320

Arg Leu His

<210> 71  
 <211> 289  
 <212> PRT  
 <213> Chlamydophila pneumoniae  
 <400> 71

Met Leu His Ala Leu Asp Thr Tyr Arg Pro Ser Ile Glu Ser Ala Ile  
 1 5 10 15  
 Glu Lys Ala Leu Glu Gly Phe Gly Pro Ile Gly His Pro Ile Arg Ser  
 20 25 30  
 Pro Val Glu Tyr Ala Leu Gln Gly Gly Gly Lys Arg Leu Arg Pro Gly  
 35 40 45  
 Leu Val Cys Met Met Ala Gln Gly Leu Gly Leu Asn His Asp Val Met  
 50 55 60  
 Asp Ser Ala Leu Ala Val Glu Phe Val His Thr Ser Thr Leu Ile Ala  
 65 70 75 80  
 Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Glu Arg Arg Gly Arg Pro  
 85 90 95  
 Thr Val His Lys Ala Phe Asp Glu Ala Thr Ala Leu Leu Ala Ser Tyr  
 100 105 110  
 Ala Leu Ile Pro Ala Ala Tyr Ser His Leu Arg Leu Asn Ala Lys Lys  
 115 120 125  
 Leu Lys Glu Gln Gly Cys Asp Pro Arg Glu Ile Asp Ile Ala Tyr Asn  
 130 135 140  
 Ile Ile Gly Asp Ile Thr Asp Lys Asn Ile Gly Cys Ser Gly Val Leu  
 145 150 155 160  
 Gly Gly Gln Tyr Asp Asp Met Phe Phe Ser Asn Arg Gly Gln Glu His  
 165 170 175  
 Val Gln Ser Ile Met Ile Lys Lys Thr Gly Ser Leu Phe Glu Ile Ala  
 180 185 190  
 Cys Ile Ser Gly Trp Leu Phe Gly Gly Gly Asp Pro Gln Phe Ala Pro  
 195 200 205  
 Ile Ile Thr Ser Phe Ser Asn Asn Phe Gly Leu Leu Phe Gln Ile Lys  
 210 215 220  
 Asp Asp Phe Ser Asp Leu Gln Lys Asp Ser Gln Gln Ile Gly Leu Asn  
 225 230 235 240



Tyr Ala Leu Leu Phe Gly Glu Lys Ala Ala Leu Glu Leu Leu Ala Arg  
245 250 255

Ser Gln Asn Asn Cys Leu Glu Leu Leu Asp Arg Leu Ser Ala Gly Gly  
260 265 270

Leu Lys Asn Ser Ser Glu Phe Glu Thr Ile Ile Ser Ser Leu Gly Ser  
275 280 285

Phe

<210> 72  
<211> 376  
<212> PRT  
<213> Arabidopsis thaliana

<400> 72

Met Glu Pro Gln Ile Leu Phe Leu Tyr Leu Ser Leu Phe Ile Leu Ser  
1 5 10 15

Leu Asn Phe Phe Phe Thr Asn Leu Lys Pro Arg Leu Val Arg Leu Phe  
20 25 30

Gln Pro Ser Leu Glu Ser Arg Val Lys Thr Ala Leu Leu Ser Arg Lys  
35 40 45

Glu Val Ala Ala Phe Leu Asp Ser Pro Ile Val Glu Asp Glu Glu Gly  
50 55 60

Glu Glu Arg Glu Glu Glu Glu Glu Gly Gly Ile Val Ser Asn Ala Asn  
65 70 75 80

Phe Thr Phe Glu Phe Asp Pro Tyr Met Met Ser Lys Ala Glu Ser Val  
85 90 95

Asn Lys Ala Leu Glu Glu Ala Ile Pro Val Gly Glu Pro Leu Lys Ile  
100 105 110

His Glu Ala Met Arg Tyr Ala Ile Leu Ala Ala Gly Lys Arg Val Arg  
115 120 125

Pro Ile Leu Cys Leu Ala Ser Cys Glu Leu Val Gly Gly Gln Glu Asn  
130 135 140

Ala Ala Met Pro Ala Ala Cys Ala Val Glu Met Ile His Thr Met Ser  
145 150 155 160

Leu Ile Lys Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Leu Arg Arg  
165 170 175

Gly Lys Pro Thr Thr His Lys Val Tyr Gly Glu Gly Val Ala Ile Leu  
180 185 190

Ser Gly Gly Ala Leu Leu Ser Leu Ala Phe Glu His Met Thr Thr Ala  
195 200 205

Glu Ile Ser Ser Glu Arg Met Val Trp Ala Val Arg Glu Leu Ala Arg  
210 215 220

Ser Ile Gly Thr Arg Gly Leu Val Ala Gly Gln Ala Met Asp Ile Ser  
225 230 235 240

Ser Glu Gly Leu Asp Leu Asn Glu Val Gly Leu Glu His Leu Glu Phe  
245 250 255

Ile His Val His Lys Thr Ala Val Leu Leu Glu Thr Ala Ala Val Leu  
260 265 270

Gly Ala Ile Ile Gly Gly Gly Ser Asp Glu Glu Ile Glu Ser Val Arg  
275 280 285

Lys Phe Ala Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile  
290 295 300

Leu Asp Glu Thr Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala Gly Lys  
305 310 315 320

Asp Gln Leu Ala Gly Lys Leu Thr Tyr Pro Lys Leu Ile Gly Leu Glu  
325 330 335

Lys Ser Lys Glu Phe Val Lys Arg Leu Thr Lys Asp Ala Arg Gln His  
340 345 350

Leu Gln Gly Phe Ser Ser Glu Lys Val Ala Pro Leu Val Ala Leu Thr  
355 360 365

Thr Phe Ile Ala Asn Arg Asn Lys  
370 375

<210> 73  
<211> 302  
<212> PRT

<213> Synechocystis sp

<400> 73

Met Val Ala Gln Gln Thr Arg Thr Asp Phe Asp Leu Ala Gln Tyr Leu  
1 5 10 15

Gln Val Lys Lys Gly Val Val Glu Ala Ala Leu Asp Ser Ser Leu Ala  
20 25 30

Ile Ala Arg Pro Glu Lys Ile Tyr Glu Ala Met Arg Tyr Ser Leu Leu  
35 40 45

Ala Gly Gly Lys Arg Leu Arg Pro Ile Leu Cys Ile Thr Ala Cys Glu  
50 55 60

Leu Cys Gly Gly Asp Glu Ala Leu Ala Leu Pro Thr Ala Cys Ala Leu  
65 70 75 80

Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Ser Met  
85 90 95

Asp Asn Asp Asp Phe Arg Arg Gly Lys Pro Thr Asn His Lys Val Tyr  
100 105 110

Gly Glu Asp Ile Ala Ile Leu Ala Gly Asp Gly Leu Leu Ala Tyr Ala  
115 120 125

Phe Glu Tyr Val Val Thr His Thr Pro Gln Ala Asp Pro Gln Ala Leu  
130 135 140

Leu Gln Val Ile Ala Arg Leu Gly Arg Thr Val Gly Ala Ala Gly Leu  
145 150 155 160

Val Gly Gly Gln Val Leu Asp Leu Glu Ser Glu Gly Arg Thr Asp Ile  
165 170 175

Thr Pro Glu Thr Leu Thr Phe Ile His Thr His Lys Thr Gly Ala Leu  
180 185 190

Leu Glu Ala Ser Val Leu Thr Gly Ala Ile Leu Ala Gly Ala Thr Gly  
195 200 205

Glu Gln Gln Gln Arg Leu Ala Arg Tyr Ala Gln Asn Ile Gly Leu Ala  
210 215 220

Phe Gln Val Val Asp Asp Ile Leu Asp Ile Thr Ala Thr Gln Glu Glu

225		230		235		240
Leu Gly Lys Thr	Ala Gly Lys Asp Val	Lys Ala Gln Lys	Ala Thr Tyr			
	245	250	255			
Pro Ser Leu	Leu Gly Leu Glu Ala	Ser Arg Ala Gln	Ala Gln Ser Leu			
	260	265	270			
Ile Asp Gln Ala	Ile Val Ala Leu Glu	Pro Phe Gly	Pro Ser Ala Glu			
	275	280	285			
Pro Leu Gln Ala	Ile Ala Glu Tyr	Ile Val Ala Arg	Lys Tyr			
	290	295	300			
<210> 74						
<211> 378						
<212> PRT						
<213> Arabidopsis thaliana						
<400> 74						
Met Lys Asn Gly	Thr Thr Ile Leu Phe	Leu Tyr Leu Ser	Leu Phe Ile			
1	5	10	15			
Leu Ser Leu Asn	Phe Phe Phe Thr	Asn Leu Lys Pro	Arg Leu Val Arg			
	20	25	30			
Leu Phe Gln Pro	Ser Leu Glu Ser	Arg Val Lys Thr	Ala Leu Leu Ser			
	35	40	45			
Arg Lys Glu Val	Ala Ala Phe Leu	Asp Ser Pro Ile	Val Glu Asp Glu			
	50	55	60			
Glu Gly Glu Glu	Arg Glu Glu Glu	Glu Gly Gly Ile	Val Ser Asn			
65	70	75	80			
.						
Ala Asn Phe Thr	Phe Glu Phe Asp	Pro Tyr Met Met	Ser Lys Ala Glu			
	85	90	95			
Ser Val Asn Lys	Ala Leu Glu Glu	Ala Ile Pro Val	Gly Glu Pro Leu			
	100	105	110			
Lys Ile His Glu	Ala Met Arg Tyr	Ala Ile Leu Ala	Ala Gly Lys Arg			
	115	120	125			
Val Arg Pro Ile	Leu Cys Leu Ala	Ser Cys Glu Leu	Val Gly Gly Gln			
	130	135	140			

Glu Asn Ala Thr Ile Pro Ala Ala Cys Ala Val Glu Met Ile His Thr  
 145 150 155 160

Met Ser Leu Ile Lys Asp Asp Leu Pro Cys Met Asp Asn Asp Asp Leu  
 165 170 175

Arg Arg Gly Lys Pro Thr Thr Asp Lys Val Tyr Gly Glu Gly Val Ala  
 180 185 190

Ile Leu Ser Gly Gly Ala Leu Leu Ser Leu Ala Phe Glu His Met Thr  
 195 200 205

Thr Ala Glu Ile Ser Ser Glu Arg Met Val Trp Ala Val Arg Glu Leu  
 210 215 220

Ala Arg Ser Ile Gly Thr Arg Gly Leu Val Ala Gly Gln Ala Met Asp  
 225 230 235 240

Ile Ser Ser Glu Gly Leu Asp Leu Asn Glu Val Gly Leu Glu His Leu  
 245 250 255

Glu Phe Ile His Val His Lys Thr Ala Val Leu Leu Glu Thr Ala Ala  
 260 265 270

Val Leu Gly Ala Ile Ile Gly Gly Gly Ser Asp Glu Glu Ile Glu Ser  
 275 280 285

Val Arg Lys Phe Ala Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp  
 290 295 300

Asp Ile Leu Asp Glu Thr Lys Ser Ser Glu Glu Leu Gly Lys Thr Ala  
 305 310 315 320

Gly Lys Asp Gln Leu Ala Gly Lys Leu Thr Tyr Pro Lys Leu Ile Gly  
 325 330 335

Leu Glu Lys Ser Lys Glu Phe Val Lys Arg Leu Thr Lys Asp Ala Arg  
 340 345 350

Gln His Leu Gln Gly Phe Ser Ser Glu Lys Val Ala Pro Leu Val Ala  
 355 360 365

Leu Thr Thr Phe Ile Ala Asn Arg Asn Lys  
 370 375

<210> 75  
 <211> 222  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 75

Thr Ser Ser Leu Ile His Asp Asp Leu Pro Cys Met Asp Asn Ala Asp  
 1 5 10 15

Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Tyr Gly Glu Asp Met  
 20 25 30

Ala Val Leu Ala Gly Asp Ala Leu Leu Ala Leu Ala Phe Glu His Met  
 35 40 45

Thr Val Val Ser Ser Gly Leu Val Ala Pro Glu Arg Met Ile Arg Ala  
 50 55 60

Val Val Glu Leu Ala Arg Ala Ile Gly Thr Thr Gly Leu Val Ala Gly  
 65 70 75 80

Gln Met Ile Asp Leu Ala Ser Glu Arg Leu Asn Pro Asp Lys Val Gly  
 85 90 95

Leu Glu His Leu Glu Phe Ile His Leu His Lys Thr Ala Ala Leu Leu  
 100 105 110

Glu Ala Ala Ala Val Leu Gly Val Ile Met Gly Gly Gly Thr Glu Glu  
 115 120 125

Glu Ile Glu Lys Leu Arg Lys Tyr Ala Arg Cys Ile Gly Leu Leu Phe  
 130 135 140

Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys Ser Thr Glu Glu Leu  
 145 150 155 160

Gly Lys Thr Ala Gly Lys Asp Val Met Ala Gly Lys Leu Thr Tyr Pro  
 165 170 175

Arg Leu Ile Gly Leu Glu Arg Ser Lys Glu Val Ala Glu Lys Leu Arg  
 180 185 190

Arg Glu Ala Glu Glu Gln Leu Leu Gly Phe Asp Pro Ser Lys Ala Ala  
 195 200 205

Pro Leu Val Ala Leu Ala Ser His Ile Ala Phe Arg His Asn  
 210 215 220

<210> 76  
 <211> 335  
 <212> PRT  
 <213> *Drosophila melanogaster*

<400> 76

Met Glu Glu Leu Asn Ile Ile Leu Gln Lys Thr Lys Asp Lys Ser Thr  
 1 5 10 15

Gln Lys Glu Gln Asp Glu Ile Leu Leu Gln Pro Phe Thr Tyr Ile Gln  
 20 25 30

Gln Ile Pro Gly Lys Gln Phe Arg Ser Glu Leu Ala Leu Ala Phe Asn  
 35 40 45

His Trp Leu Leu Ile Pro Gly Glu Lys Leu Ala Gln Ile Gly Asn Ile  
 50 55 60

Val Gln Met Leu His Asn Ser Ser Leu Leu Ile Glu Asp Asn Ser Ile  
 65 70 75 80

Leu Arg Arg Gly Val Pro Val Ala His Ser Ile Tyr Gly Val Ala Ser  
 85 90 95

Thr Ile Asn Ala Ala Asn Tyr Ala Leu Phe Leu Ala Leu Glu Lys Val  
 100 105 110

Gln Gln Leu Asp His Pro Glu Val Arg Lys Val Tyr Thr Glu Gln Leu  
 115 120 125

Leu Glu Leu His Arg Gly Gln Gly Met Glu Ile Tyr Trp Arg Asp Ser  
 130 135 140

Phe Thr Cys Pro Ser Glu Ser Asp Tyr Lys Leu Met Thr Val Arg Lys  
 145 150 155 160

Thr Gly Gly Leu Phe Met Leu Ala Ile Arg Leu Met Gln Leu Phe Ser  
 165 170 175

Ser Asn Lys Glu Asp Tyr Ser Lys Leu Thr Ala Ile Leu Gly Leu Tyr  
 180 185 190

Phe Gln Ile Arg Asp Asp Tyr Cys Asn Leu Ser Leu Lys Glu Val Ser  
 195 200 205

Val Asn Lys Ser Phe Ala Glu Asp Leu Thr Glu Gly Lys Phe Gly Phe  
 210 215 220

Pro Val Ile His Ala Val Arg Thr Gln Lys Gln Asp Lys Gln Val Leu  
 225 230 235 240

Arg Lys Ser Ser Gln Arg Thr His Asp Ile Glu Val Lys Lys Tyr Cys  
 245 250 255

Ile Thr Leu Leu Glu Lys Leu Gly Ser Phe Gln Tyr Thr Arg Lys Val  
 260 265 270

Leu Glu Ser Leu Asp Ala Glu Ala Arg Ser Glu Val Ser Thr Leu Gly  
 275 280 285

Ser Asn Pro Tyr Met Asp Arg Leu Leu Asn Lys Leu Leu Ser Trp Lys  
 290 295 300

Thr Ser Asp Ser Ala Ser Ile Thr Gln Ser Asn Gln Ile Asn His Asn  
 305 310 315 320

Asn Val Ser Arg Ser Ser Pro Asn Gln Asn Thr Phe Asn Cys Asn  
 325 330 335

<210> 77

<211> 338

<212> PRT

<213> Drosophila melanogaster

<400> 77

Met Glu Glu Leu Asn Ile Ile Leu Gln Lys Thr Lys Asp Lys Ser Thr  
 1 5 10 15

Gln Lys Glu Gln Asp Glu Ile Leu Leu Gln Pro Phe Thr Tyr Ile Gln  
 20 25 30

Gln Ile Pro Gly Lys Gln Phe Arg Ser Glu Leu Ala Leu Ala Phe Asn  
 35 40 45

His Trp Leu Leu Ile Pro Gly Glu Lys Leu Ala Gln Ile Gly Asp Ile  
 50 55 60

Val Gln Met Leu His Asn Ser Ser Leu Leu Ile Asp Asp Ile Glu Asp  
 65 70 75 80

Asn Ser Ile Leu Arg Arg Gly Val Pro Val Ala His Ser Ile Tyr Gly  
 85 90 95



Val Ala Ser Thr Ile Asn Ala Ala Asn Tyr Ala Leu Phe Leu Ala Leu  
100 105 110

Glu Lys Val Gln Gln Leu Asp His Pro Glu Ala Thr Lys Val Tyr Thr  
115 120 125

Glu Gln Leu Leu Glu Leu His Arg Gly Gln Gly Met Glu Ile Tyr Trp  
130 135 140

Arg Asp Ser Phe Thr Cys Pro Ser Glu Ser Asp Tyr Lys Leu Met Thr  
145 150 155 160

Val Arg Lys Thr Gly Gly Leu Phe Met Leu Ala Ile Arg Leu Met Gln  
165 170 175

Leu Phe Ser Ser Asn Lys Glu Asp Tyr Ser Lys Leu Thr Ala Ile Leu  
180 185 190

Gly Leu Tyr Phe Gln Ile Arg Asp Asp Tyr Cys Asn Leu Ser Leu Lys  
195 200 205

Glu Tyr Thr Glu Asn Lys Ser Phe Ala Glu Asp Leu Thr Glu Gly Lys  
210 215 220

Phe Gly Phe Pro Val Ile His Ala Val Arg Thr Gln Lys Gln Asp Lys  
225 230 235 240

Gln Val Leu His Ile Leu Arg Gln Arg Thr His Asp Ile Glu Val Lys  
245 250 255

Lys Tyr Cys Ile Thr Leu Leu Glu Lys Leu Gly Ser Phe Gln Tyr Thr  
260 265 270

Arg Lys Val Leu Glu Ser Leu Asp Ala Glu Ala Arg Ser Glu Val Ala  
275 280 285

Arg Leu Gly Ser Asn Pro Tyr Met Asp Arg Leu Leu Asn Lys Leu Leu  
290 295 300

Ser Trp Lys Thr Ser Asp Ser Ala Ser Ile Thr Gln Ser Asn Gln Ile  
305 310 315 320

Asn His Asn Asn Val Ser Arg Ser Ser Pro Asn Gln Asn Thr Phe Asn  
325 330 335

Cys Asn

<210> 78  
<211> 360  
<212> PRT  
<213> Arabidopsis thaliana

<400> 78

Met Ala Thr Thr Val His Leu Ser Ser Phe Ser Leu Phe Ile Gln Ser  
1 5 10 15

Arg Gly Arg Arg Asp Asn Ser Ile Ser Ser Val Lys Ser Leu Lys Lys  
20 25 30

Arg Thr Gly Leu Ser Pro Ser Ser Ala Leu Thr Ser Gln Gly Gly Arg  
35 40 45

Asp Met Ile Pro Pro Glu Gly Lys Cys Asn Asp His Asn Ser Ala Phe  
50 55 60

Asp Phe Lys Leu Tyr Met Ile Arg Lys Ala Glu Ser Val Asn Ala Ala  
65 70 75 80

Leu Asp Val Ser Val Pro Leu Arg Glu Pro Leu Thr Val Gln Glu Ala  
85 90 95

Val Arg Tyr Ser Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Leu Leu  
100 105 110

Cys Ile Ala Val Cys Glu Leu Val Gly Gly Asp Glu Ala Thr Ala Met  
115 120 125

Ser Ala Ala Cys Ala Val Glu Met Ile His Thr Ser Ser Leu Ile His  
130 135 140

Asp Asp Leu Pro Cys Met Asp Asn Ala Asp Leu Arg Arg Gly Lys Pro  
145 150 155 160

Thr Asn His Lys Val Tyr Gly Glu Asp Met Ala Val Leu Ala Gly Asp  
165 170 175

Ala Leu Leu Ala Leu Ala Phe Glu His Met Thr Val Val Ser Ser Gly  
180 185 190

Leu Val Ala Pro Glu Arg Met Ile Arg Ala Val Val Glu Leu Ala Arg

195		200		205
Ala Ile Gly Thr Thr Gly Leu Val Ala Gly Gln Met Ile Asp Leu Ala				
210		215		220
Ser Glu Arg Leu Asn Pro Asp Lys Val Gly Leu Glu His Leu Glu Phe				
225		230		235
				240
Ile His Leu His Lys Thr Ala Ala Leu Leu Glu Ala Ala Ala Val Leu				
		245		250
				255
Gly Val Ile Met Gly Gly Gly Thr Glu Glu Glu Ile Glu Lys Leu Arg				
		260		265
				270
Lys Tyr Ala Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile				
		275		280
				285
Leu Asp Val Thr Lys Ser Thr Glu Glu Leu Gly Lys Thr Ala Gly Lys				
		290		295
				300
Asp Val Met Ala Gly Lys Leu Thr Tyr Pro Arg Leu Ile Gly Leu Glu				
305		310		315
				320
Arg Ser Lys Glu Val Ala Glu Lys Leu Arg Arg Glu Ala Glu Glu Gln				
		325		330
				335
Leu Leu Gly Phe Asp Pro Ser Lys Ala Ala Pro Leu Val Ala Leu Ala				
		340		345
				350
Ser Tyr Ile Ala Cys Arg His Asn				
		355		360

<210> 79  
 <211> 360  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 79

Met Ala Asn Thr Val His Leu Ser Ser Ser Ser Leu Phe Ile Gln Thr				
1		5		10
				15
Arg Gly Arg Lys Tyr Asn Ser Ile Leu Ser Phe Asn Asn Leu Gln Lys				
		20		25
				30
Arg Thr Val Leu Ser Leu Ser Cys Ala Leu Thr Ser Gln Gly Gly Lys				
		35		40
				45

Asp Met Ile Pro Pro Lys Gly Lys Ser Asn Asp Arg Asn Phe Ala Phe  
 50 55 60

Asp Phe Lys Ser Tyr Met Ile Arg Lys Ala Glu Ser Val Ser Met Ala  
 65 70 75 80

Leu Asn Val Ser Val Pro Pro Gln Asp Pro Leu Ala Ile Gln Glu Ala  
 85 90 95

Val Arg Tyr Ser Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Leu Leu  
 100 105 110

Cys Ile Ala Ala Cys Glu Leu Val Gly Gly Asp Glu Ala Thr Ala Met  
 115 120 125

Ser Ala Ala Cys Ala Val Glu Met Ile His Thr Ser Ser Leu Ile His  
 130 135 140

Asp Asp Leu Pro Cys Met Asp Asp Ala Asp Leu Arg Arg Gly Lys Pro  
 145 150 155 160

Thr Asn His Lys Val Phe Gly Glu His Met Ala Val Leu Ala Gly Asp  
 165 170 175

Ala Leu Leu Ala Leu Ala Phe Glu His Met Thr Val Val Ser Ser Gly  
 180 185 190

Leu Val Ala Pro Glu Arg Met Ile Arg Ser Val Thr Glu Leu Ala Lys  
 195 200 205

Ala Ile Gly Thr Lys Gly Leu Val Ala Gly Gln Val Ser Asp Leu Cys  
 210 215 220

Ser Gln Gly Leu Asn Pro Tyr Asp Val Gly Leu Glu Arg Leu Glu Phe  
 225 230 235 240

Ile His Leu His Lys Thr Ala Ala Leu Leu Glu Ala Ala Ala Val Leu  
 245 250 255

Gly Ala Ile Ile Gly Gly Gly Thr Glu Glu Glu Ile Gln Lys Leu Arg  
 260 265 270

Lys Tyr Gly Arg Cys Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile  
 275 280 285

Ile Asp Val Thr Glu Ser Thr Glu Glu Leu Gly Lys Thr Ala Gly Lys  
 290 295 300

Asp Val Met Ala Arg Lys Leu Thr Tyr Pro Arg Leu Ile Gly Leu Glu  
 305 310 315 320

Arg Ser Arg Glu Val Ala Glu Lys Leu Arg Arg Glu Ala Ala Glu Gln  
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Leu Leu Gly Phe Asp Ser Asn Lys Val Ala Pro Leu Val Ala Leu Ala  
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Ser Tyr Ile Ala Cys Arg His Asn  
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<210> 80  
 <211> 292  
 <212> PRT  
 <213> Chlamydia muridarum

<400> 80

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Asp Ser Leu Glu Asp Phe Gly Lys Thr Gln Ser Gly Leu Arg Asn Pro  
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Ile Glu Tyr Ala Leu Leu Gly Gly Gly Lys Arg Val Arg Pro Leu Leu  
 35 40 45

Val Cys Leu Phe Ala Asp Ser Ile Gln Lys Arg Arg Asp Val Leu Asp  
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Thr Ala Ile Ala Val Glu Tyr Ile His Thr Ser Thr Leu Ile Ala Asp  
 65 70 75 80

Asp Leu Pro Cys Met Asp Asn Asp Asp Met Arg Arg Gly Lys Pro Ser  
 85 90 95

Val His Lys Ala Phe Asp Glu Ala Ser Ala Leu Leu Ala Ser Tyr Ala  
 100 105 110

Leu Ile Pro Ala Ala Tyr Ala Arg Ile Arg Lys Asn Ala Lys Ala Leu  
 115 120 125

Lys Glu Val Val Ser Val Gln Arg Glu Ile Glu Asp Ala Tyr Glu Asp  
 130 135 140

Val Leu Asp Leu Ile Glu Leu Arg Phe Gly Val Glu Gly Val Leu Gly  
145 150 155 160

Gly Gln Tyr Glu Asp Val Phe Phe Gln Ser Phe Thr Glu Glu Ser Val  
165 170 175

Ile Asn Ile Ile Asn Lys Lys Thr Ser Ala Leu Phe Glu Ile Ala Cys  
180 185 190

Val Ser Gly Trp Leu Phe Gly Gly Gly Ala Arg Glu Lys Thr Pro Leu  
195 200 205

Val Ile Glu Phe Ala Arg Asn Phe Gly Ile Leu Phe Gln Ile Gly Asp  
210 215 220

Asp Leu Ala Asp Leu Ser Gln Asp Asn Gln Glu Glu Lys His Met Asn  
225 230 235 240

Tyr Ala Leu Leu Phe Gly Glu Gln Ala Ala Lys Asp Leu Leu Asn Arg  
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Ser Phe Asn Ser Cys Ile Glu Ile Leu His Leu Leu Lys Glu Lys Gly  
260 265 270

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Lys His Ser Leu  
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<210> 81  
<211> 252  
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<213> Arabidopsis thaliana

<400> 81

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35 40 45

Phe Ser Ile Gln Arg Thr Gly Asn Ser Ser Gly Phe Asn Phe Thr Val  
50 55 60

Leu Asn Gln Ile Phe Ser Lys His Arg Lys Met Ser Thr Phe Leu Ala  
65 70 75 80

Ser Leu Thr Arg Leu Phe Phe Cys Phe Cys Ser Asp Asn Gly Glu Val  
85 90 95

Ser His Lys Leu Met Ala Lys Val Glu Ala His Lys Arg Ile Ile Trp  
100 105 110

Ala Cys Ser Trp Asn Pro Phe Gly His Gln Phe Ala Thr Ser Ser Arg  
115 120 125

Asp Lys Thr Val Lys Ile Trp Ser Val Glu Asn Asp Ala Arg Ile Lys  
130 135 140

Gln Ile Leu Val Leu Pro Pro Phe Gly Ser Ser Val Thr Ala Val Ala  
145 150 155 160

Trp Thr Gly Leu Asp Arg Asn Glu Lys Ser Gly Cys Val Ala Val Gly  
165 170 175

Met Glu Ser Gly Leu Ile Glu Leu Trp Asn Val Lys Ile Ile Glu Thr  
180 185 190

Glu Glu Gly Thr Thr Ala Thr Ala Ala Leu Ala Leu Arg Leu Glu Pro  
195 200 205

Phe Met Cys His Val Ser Ala Val Asn Arg Leu Ala Trp Arg Pro Thr  
210 215 220

Glu Lys Cys Glu Ser Asn Gln Ser Leu Arg Trp Leu Thr Ser Cys Gly  
225 230 235 240

Asp Asp Asn Cys Val Arg Val Phe Asn Phe Lys Phe  
245 250

<210> 82  
<211> 262  
<212> PRT  
<213> Aquifex aeolicus

<400> 82

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Tyr Tyr Pro Leu Gln Lys Gly Lys Arg Ile Arg Pro Leu Phe Thr Val  
 35 40 45

Ala Val Ala Ser Ala Leu Gly Gly Asn Glu Asp Asp Ala Ile Thr Val  
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Gly Ser Gly Ile Glu Leu Ile His Asn Tyr Ser Leu Ile His Asp Asp  
 65 70 75 80

Leu Pro Cys Met Asp Asn Asp Val Trp Arg Arg Gly Leu Pro Thr Cys  
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His Ile Lys Phe Gly Glu Ala Met Ala Leu Leu Ala Gly Asp Ala Leu  
 100 105 110

Leu Thr Tyr Thr Phe Glu Val Leu Ser Gln Arg Glu Asn Tyr Lys Thr  
 115 120 125

Leu Ser Cys Glu Glu Ile Leu Glu Ile Asn Lys Ile Ile Ala Gln Lys  
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Ala Gly Ser Asn Gly Met Val Gly Gly Gln Val Leu Asp Ile Lys Gly  
 145 150 155 160

Tyr Glu Asp Leu Tyr Glu Val Ser Val Lys Lys Thr Gly Ala Leu Phe  
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Glu Ala Cys Phe Met Cys Gly Ala Val Val Ala Lys Arg Arg Glu Lys  
 180 185 190

Leu Lys Glu Met Glu Ser Ile Gly Arg Lys Val Gly Leu Leu Phe Gln  
 195 200 205

Met Val Asp Asp Tyr Leu Asp Lys Asp Gly Phe Tyr Glu Lys Leu Gly  
 210 215 220

Glu Cys Leu Lys Glu Glu Ile Lys Lys Leu Tyr Glu Glu Leu Lys Glu  
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Lys Glu Ile Phe Lys Glu Ser Gln Glu Leu Arg Tyr Leu Leu Asp Leu  
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Ile Tyr Lys Arg Ile Thr  
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<212> PRT  
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<400> 83

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35 40 45

Ser Val Ala Thr Arg Cys Gly Asp Ser Arg Pro Ala Leu Ser Asp Ala  
50 55 60

Ala Ala Val Ala Leu Glu Leu Ile His Cys Ala Ser Leu Val His Asp  
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Asp Leu Pro Cys Phe Asp Asp Ala Glu Ile Arg Arg Gly Lys Pro Thr  
85 90 95

Val His Arg Ala Tyr Ser Glu Pro Leu Ala Ile Leu Thr Gly Asp Ser  
100 105 110

Leu Ile Val Met Gly Phe Glu Val Leu Ala Gly Ala Ala Ala Asp Arg  
115 120 125

Pro Gln Arg Ala Leu Gln Leu Val Thr Ala Leu Ala Val Arg Thr Gly  
130 135 140

Met Pro Met Gly Ile Cys Ala Gly Gln Gly Trp Glu Ser Glu Ser Gln  
145 150 155 160

Ile Asn Leu Ser Ala Tyr His Arg Ala Lys Thr Gly Ala Leu Phe Ile  
165 170 175

Ala Ala Thr Gln Met Gly Ala Ile Ala Ala Gly Tyr Glu Ala Glu Pro  
180 185 190

Trp Glu Glu Leu Gly Ala Arg Ile Gly Glu Ala Phe Gln Val Ala Asp

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Gly Gln Asp Glu Ile His Ala Arg Pro Ser Ala Val Arg Glu Tyr Gly		
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Val Glu Gly Ala Ala Lys Gly Leu Lys Asp Ile Leu Gly Gly Ala Ile		
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Arg Arg Tyr Ala Asp Lys Ile Val Pro Ala Gln Val Ala Ala Arg Val		
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Pro Ile Thr Leu Thr Lys Pro Ile Ser Phe Arg Ser Lys Arg Thr Val		
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Ser Ser Ser Ser Ser Ile Val Ser Ser Ser Val Val Thr Lys Glu Asp		
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Asn Leu Arg Gln Ser Glu Pro Ser Ser Phe Asp Phe Met Ser Tyr Ile		
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Ile Thr Lys Ala Glu Leu Val Asn Lys Ala Leu Asp Ser Ala Val Pro		
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Ala Gly Gly Lys Arg Val Arg Pro Val Leu Cys Ile Ala Ala Cys Glu		
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Leu Val Gly Gly Glu Glu Ser Thr Ala Met Pro Ala Ala Cys Ala Val  
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Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro Cys Met  
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Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Asn His Lys Val Phe  
 165 170 175

Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ala Leu Leu Ser Phe Ala  
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Phe Glu His Leu Ala Ser Ala Thr Ser Ser Asp Val Val Ser Pro Val  
 195 200 205

Arg Val Val Arg Ala Val Gly Glu Leu Ala Lys Ala Ile Gly Thr Glu  
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Gly Leu Val Ala Gly Gln Val Val Asp Ile Ser Ser Glu Gly Leu Asp  
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Leu Asn Asp Val Gly Leu Glu His Leu Glu Phe Ile His Leu His Lys  
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Thr Ala Ala Leu Leu Glu Ala Ser Ala Val Leu Gly Ala Ile Val Gly  
 260 265 270

Gly Gly Ser Asp Asp Glu Ile Glu Arg Leu Arg Lys Phe Ala Arg Cys  
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Ile Gly Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys  
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Ser Ser Lys Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Ile Ala Asp  
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Lys Leu Thr Tyr Pro Lys Ile Met Gly Leu Glu Lys Ser Arg Glu Phe  
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Ala Glu Lys Leu Asn Arg Glu Ala Arg Asp Gln Leu Leu Gly Phe Asp  
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Arg Gln Asn  
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<212> PRT  
<213> Capsicum annum

<400> 85

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Ile Pro Leu Lys Asn Ser Lys Ile Asn Pro Lys Leu Asn Lys Lys Arg  
35 40 45

Pro Phe Ser Pro Leu Thr Val Ser Ala Ile Ala Thr Thr Lys Glu Asp  
50 55 60

Glu Arg Ile Glu Ala Ala Gln Thr Glu Glu Pro Phe Asn Phe Lys Ile  
65 70 75 80

Tyr Val Thr Glu Lys Ala Ile Ser Val Asn Lys Ala Leu Asp Glu Ala  
85 90 95

Ile Ile Val Lys Glu Pro His Val Ile His Glu Ala Met Arg Tyr Ser  
100 105 110

Leu Leu Ala Gly Gly Lys Arg Val Arg Pro Met Leu Cys Leu Ala Ala  
115 120 125

Cys Glu Leu Val Gly Gly Asn Gln Glu Asn Ala Met Ala Ala Ala Cys  
130 135 140

Ala Val Glu Met Ile His Thr Met Ser Leu Ile His Asp Asp Leu Pro  
145 150 155 160

Cys Met Asp Asn Asp Asp Leu Arg Arg Gly Lys Pro Thr Asn His Lys  
165 170 175

Ile Tyr Gly Glu Asp Val Ala Val Leu Ala Gly Asp Ser Leu Leu Ala  
180 185 190

Phe Ala Phe Glu His Ile Val Asn Ser Thr Ala Gly Val Thr Pro Ser  
195 200 205

Arg Ile Val Gly Ala Val Ala Glu Leu Ala Lys Ser Ile Gly Thr Glu  
210 215 220

Gly Leu Val Ala Gly Gln Val Ala Asp Ile Lys Cys Thr Gly Asn Ala  
225 230 235 240

Ser Val Ser Leu Glu Thr Leu Glu Phe Ile His Val His Lys Thr Ala  
245 250 255

Ala Leu Leu Glu Ser Ser Val Val Leu Gly Ala Ile Leu Gly Gly Gly  
260 265 270

Thr Asn Val Glu Val Glu Lys Leu Arg Arg Phe Ala Arg Cys Ile Gly  
275 280 285

Leu Leu Phe Gln Val Val Asp Asp Ile Leu Asp Val Thr Lys Ser Ser  
290 295 300

Glu Glu Leu Gly Lys Thr Ala Gly Lys Asp Leu Val Val Asp Lys Thr  
305 310 315 320

Thr Tyr Pro Lys Leu Leu Gly Leu Glu Lys Ala Lys Glu Phe Ala Ala  
325 330 335

Glu Leu Asn Arg Glu Ala Lys Gln Gln Leu Glu Gly Phe Asp Ser Arg  
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Lys Ala Ala Pro Leu Ile Ala Leu Ala Asp Tyr Ile Ala Tyr Arg Asp  
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Asn

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<212> DNA

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<212> DNA
<213> Human

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 <211> 1031  
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acagactttt taagttcccc caccttatct ctcgttgaag gcctgttctt tgggggtgtt	960
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 <211> 610  
 <212> DNA  
 <213> Human

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<210> 98  
 <211> 888  
 <212> DNA  
 <213> Human

<220>  
 <221> misc\_feature  
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 <223> n equals unknown

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<210> 99  
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 <212> DNA  
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<220>  
 <221> misc\_feature  
 <222> (1)..(1162)  
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<400> 99	
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<210> 100  
 <211> 692  
 <212> DNA  
 <213> Human

<220>  
 <221> misc\_feature  
 <222> (1)..(692)  
 <223> n equals unknown

<400> 100	
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<210> 101  
 <211> 2694  
 <212> DNA  
 <213> Streptococcus pneumoniae

<400> 101

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<210> 102

<211> 2799

<212> DNA

<213> Streptococcus pyogenes

<400> 102

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 <213> Staphylococcus epidermidis

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<210> 123

<211> 2880

<212> DNA

<213> Candida utilis

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 <212> DNA  
 <213> Glycine max

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 <212> DNA  
 <213> Mus musculus

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 <223> n equals unknown

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<210> 129  
 <211> 1305  
 <212> DNA  
 <213> Schistosoma mansoni

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 <213> Schistosoma mansoni

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 <211> 324  
 <212> DNA  
 <213> Solanum tuberosum

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<210> 133  
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 <212> DNA  
 <213> Candida utilis

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 <212> DNA  
 <213> Gossypium hirsutum

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 <213> Mus musculus

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 <213> Mus musculus

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 <212> DNA  
 <213> *Schistosoma mansoni*

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<210> 139  
 <211> 2214  
 <212> DNA  
 <213> *Solanum tuberosum*

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 <212> DNA  
 <213> Solanum tuberosum

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 <213> Mus musculus

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 <211> 408  
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 <213> Mus musculus

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 <211> 3162  
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 <213> Schizosaccharomyces pombe

<400> 143  
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<212> DNA

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gaaggttggg gccaccaccc acggtaccaa tctcgataga tggcatgggtg cagctgatat	300
ataaatcttc atttgtcgga cctgaggctt ccattaaagt aatacagtta gaggatccaa	360
cattctgagc tgcgtcctgg ccacaagcaa tgtagatagc ggtgacaatg tttgcagcat	420
gagcgttgta gcctccgatg ctaccagcca ttgcagagcc cactaaattc ttgttaatat	480
taacctcaat catagcctct gtggtagtct ttaaaacttc tctaacaacc ttgcttgga	540
ttacagcttc acaacaaca gattttccac ggccctcaat ccaattgata gcagcagggt	600
tcttgtcagt acaatagtta ccactaacag ccagaatctg catttccgga aaatactcgt	660
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cagatctgga ctggaaacgg atataaagggt tgcgtccagc gatactagta tgaagtttct	780
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ggccacgcgt cataccatct gcaagaactc gggagctggc acctccacca agaccgatcg	960
ctctgcaacc tctattgggtg ctagccacaa gacaaccttc tgttggtgcc attggaacct	1020
ggaattcttt ttcattccaag caaagaggtc ctgccactcc cacagggatg ggcatatatc	1080
caataacatt ctcaaacag gctcccatca ccaaagagta attataatcg cgataaggca	1140
gatactggag agagctcggg tcagaaagtt tcttcgaaag taactgtcgg cgaatcgata	1200
caccacgctc atgagtttcc atcagagtct cgagcttgta agctgggata tgttttagcat	1260

tcactaactg gatgatctcg gcgtcactaa ggaactttgc acctttctct gcattaccaa 1320  
ggatctgtag acattcttca ttaggccgag gttcccgcgg aagttcaatt tcagggttcct 1380  
gggtaaccag aac 1393

<210> 149  
<211> 354  
<212> DNA  
<213> Artificial sequence

<220>  
<223> CDS

<220>  
<221> misc\_feature  
<222> (1)..(354)  
<223> CDS

<400> 149  
ctagactatt atgctgtctt cttggtgcaa gcgccttgca gatcctgtaa attgatcttc 60  
gaacggttgt gaatcatatg agatttgaca agatgtccgg ccgccaaggc agccataaga 120  
gacaattcgc cggccattac ggtcccacac acaattcgtg caagttgccg ggcatttttcg 180  
ccaggattat ctttgcatgc tccttgaaca cccaacattt gcagacaggc ctgctgtgga 240  
agaaggttgg tgccaccacc cacggtacca atctcgatag atggcatggg gcagctgata 300  
tataaatctt catttgctcg acctgaggct tccattaaag taatacagtt agag 354

<210> 150  
<211> 309  
<212> DNA  
<213> Artificial sequence

<220>  
<223> CDS

<220>  
<221> misc\_feature  
<222> (1)..(309)  
<223> CDS

<400> 150  
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acaagaaacc tgctgctatc aattggattg agggccgtgg aaaatctgtt gtttgtgaag 120  
ctgtaattcc aagcaagggt gttagagaag ttttaaagac taccacagag gctatgattg 180  
aggttaatat taacaagaat ttagtgggct ctgcaatggc tggtagcatc ggaggctaca 240  
acgctcatgc tgcaaacatt gtcaccgcta tctacattgc ttgtggccag gacgcagctc 300

agaatgttg

309

<210> 151  
<211> 360  
<212> DNA  
<213> Artificial sequence

<220>  
<223> CDS

<220>  
<221> misc\_feature  
<222> (1)..(360)  
<223> CDS

<400> 151  
agcttgaaa gtgctttctc tgtgccctta gatatcatgt tcatacccat tgcgtcacca 60  
gatctggact ggaaacggat ataaagggtg cgtccagcga tactagtatg aagtttctga 120  
aggcgcgcaa atctgctagt gctgtcaa at gcctccttga tcaactgcgaa cccttcggat 180  
gtttcgagcc atgctttcac ttctgcagag tcacaagccc ttggaagacg cacaactggg 240  
ccacgcgtca taccatctgc aagaactcgg gagctggcac ctccaccaag accgatcgct 300  
ctgcaacctc tattggtgct agccacaaga caaccttctg ttgttgccat tggaacctgg 360

<210> 152  
<211> 371  
<212> DNA  
<213> Artificial sequence

<220>  
<223> CDS

<220>  
<221> misc\_feature  
<222> (1)..(371)  
<223> CDS

<400> 152  
aattcttttt catccaagca aagaggtcct gccactccca cagggatggg catatatcca 60  
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tactggagag agctcggttc agaaagtttc ttcgaaagta actgtcggcg aatcgatata 180  
ccacgctcat gagtttccat cagagtctcg agcttgtaag ctgggatatg tttagcattc 240  
actaactgga tgatctcggc gtcactaagg aactttgcac ctttctctgc attaccaagg 300  
atctgtagac attcttcatt aggccgaggt tcccgcggaa gttcaatttc aggttcctgg 360  
gtaaccagaa c 371



<210> 153  
 <211> 1159  
 <212> DNA  
 <213> *Rattus norvegicus*

<220>  
 <221> misc\_feature  
 <222> (1)..(1159)  
 <223> n equals unknown

<400> 153  
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 ggtaactatt gcaccgacaa gaaacctgct gccataaact ggatcgaagg gagaggaaag 180  
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 agcataggag gctacaacgc ccatgctgcc aacatcgtca ctgccatcta cattgcatgt 360  
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 gtgggtggtg ggaccaacct tctacctcag caagcctgcc tgcagatgct aggtgttcaa 540  
 ggggcgtgca aagacaatcc tggagaaaat gcacggcagc ttgccgaat tgtgtgtggc 600  
 actgtaatgg ctggtgagtt gtccttgatg gcagcattgg cagcaggaca tcttgtcaga 660  
 agtcacatgg ttcacaacag atcaaagata aatttacaag atctgcaggg aacatgcacc 720  
 aagaaggcag cttgagcatc ctgacatact tgaactgaaa cacgggcatt gggttctcaa 780  
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 tgatcagtga gctgcttggt tttctggctc tttcagagac gtctgcgggc ctttgcacca 900  
 gactcctcag acgtgggaac tatggttctt tccgtgccgt attctagaaa gatctcatgt 960  
 ggatgtcatg gtgctctgag caccacagat gtgactgcag ctcgtttcta aaagctgcc 1020  
 caagctggaa gctggtgttt tgacgaaatg atggatcttg gtgatcagtg tggggctcac 1080  
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 atttattcag tctgggcgg 1159

<210> 154  
 <211> 2195  
 <212> DNA  
 <213> *Arabidopsis thaliana*

<400> 154  
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aacaactcca	acggatcttt	cgttcttat	cagcctcgca	cttccgatga	cgatcatcgt	180
cgccgggcta	caacaattgc	tcctccaccg	aaagcatccg	acgcgcttcc	tcttccgtta	240
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cgggtggcgtg	acaagatccg	ttacaatacg	cctcttcacg	tcgtcactat	cacagaactc	360
ggcgccatta	ttgctctcat	cgttccgttt	atctatctcc	tagggttttt	tggtattgac	420
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gatgatgatg	accaccgcct	tgtcacgtgc	tctccaccga	ctccgatcgt	ttccggttgc	540
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gtgaaatcgg	ttatcgacgg	agttattcca	tcgtactcgc	ttgaatctcg	tctcggtgat	660
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gaaggggttac	cggttgatgg	atgtgattat	gaatcgattt	tggggcaatg	ctgtgagatg	780
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<210> 155  
 <211> 1394  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> CDS

<220>  
 <221> misc\_feature  
 <222> (1)..(1394)  
 <223> CDS

<400> 155	
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gatcatccag ttagtgaatg ctaaacatat ccagcttac aagctcgaga ctctgatgga	180
aactcatgag cgtgggtgtat cgattcgccg acagttactt tcgaagaaac tttctgaacc	240
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tgtttgtaaa gctgtaattc caagcaagggt tgtagagaa gttttaaaga ctaccacaga	900
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ggacgcagct cagaatgttg gatcctctaa ctgtattact ttaatggaag cctcaggtcc 1080  
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 tgggtggcacc aaccttcttc cacagcaggc ctgtctgcaa atgttggggtg ttcaaggagc 1200  
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 aatggccggc gaattgtctc ttatggctgc cttggcggcc ggacatcttg tcaaattctca 1320  
 tatgattcac aaccgttcga agatcaattt acaggatctg caaggcgctt gcaccaagaa 1380  
 gacagcataa tagt 1394

<210> 156  
 <211> 354  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> CDS

<220>  
 <221> misc\_feature  
 <222> (1)..(354)  
 <223> CDS

<400> 156  
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 cacagcaggc ctgtctgcaa atgttggggtg ttcaaggagc atgcaaagat aatcctggcg 180  
 aaaatgcccg gcaacttgca cgaattgtgt gtgggaccgt aatggccggc gaattgtctc 240  
 ttatggctgc cttggcggcc ggacatcttg tcaaattctca tatgattcac aaccgttcga 300  
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<210> 157  
 <211> 309  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> CDS

<220>  
 <221> misc\_feature  
 <222> (1)..(309)  
 <223> CDS

<400> 157  
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ctgtaattcc aagcaagggtt gttagagaag ttttaaagac taccacagag gctatgattg	180
aggttaatat taacaagaat ttagtgggct ctgcaatggc tggtagcatc ggaggctaca	240
acgctcatgc tgcaaacatt gtcaccgcta tctacattgc ttgtggccag gacgcagctc	300
agaatgttg	309

<210> 158  
 <211> 1227  
 <212> DNA  
 <213> Human

<400> 158	
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gatggtgcgg tgctgttct tggccctgca gagagctgtg ggcggttgtt aaggcgaccg	180
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gtgggacttc gcacaatgac tcaaaagatt cttctccctc tttttttttt tttttttttg	1140
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caaatataga acagttaatt tctgcag	1227

<210> 159  
 <211> 1757

<212> DNA  
<213> Human

<400> 159

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tgagacagcc acttggtttt tggctctttc agagaggtct caggttcttt ccatgcagac	180
tcctcagatc tgaacacagt ttagtgcttt acatgctgtg ctctttgaag agatttcaac	240
aagaatattg tatgttaaag catcagagat ggtaatctac agctcacctc tgaaagcaaa	300
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ctaagttcta agttcatgtt tgtaaattaa tacttcattt ggtgctggtc tattttgatt	540
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aaaggaagtt aatacca

1757

<210> 160

<211> 1045

<212> DNA

<213> Mus musculus

<400> 160

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<213> *Saccharomyces cerevisiae*

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accatgccat ccattgagct aggaacggta ggaggaggta ccgtcttacc ccctcagtca	2520

gcatgccttc agatgatgga tgtgaaaggg tctaacaatcc atgggttcggg actgaatgcc	2580
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gaggagtcat gcagttttct tttgag	2966

<210> 165  
 <211> 429  
 <212> DNA  
 <213> *Stongylocentrotus purpuratus*

<400> 165	
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ccagcacaca ttgtccaaca ggtaagatac tgtgagacta gtcaaagtta ttgattcaat	180
aagccagttc acagttgcag tctgagcatg agcagatgaa ggtcattgca gagcaaattt	240
tgaatacac ggagacgaaa tactggatac gtgctcatga aagttatggg aatcattatt	300
cattcaggca caagcagggc actccatgat acacaggtgg aagtattctt tgaaaattgg	360
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caaagtggg	429

<210> 166  
 <211> 3446  
 <212> DNA  
 <213> *Schistosoma mansoni*

<400> 166	
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taaaatctta cgacgcatca ggcaatatag taacgcggag tacttcttca gatgttcttt	120
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agagaagaaa tgctaccatc acagtatttc gctacagatg cttttcatct cagtcctttc	240
gtttcatatt ctcaatgttc attcttctgt atcatcattt tagtatcaac tggatttgaa	300
ctgttcgcaa ttattcccat ttacttacag gaaaaattga gtattcgtag attaggcaac	360
gttttgctgc ttgacaattt acctgtaggc tttatattct gaggtataaa tatgctcaaa	420
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ttgttggaag	ttgaattggt	gaattatgaa	catgctaaac	gccattgttt	actcagtcac	900
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cgtttagatt	tgtcaacatt	tcttaataac	ccacatatta	ttgaacgcac	tccgtacaaa	1980
gactatgatt	atcgtcttgt	atatggtcaa	tggtgtgaag	aggttatcgg	gtacatgcct	2040
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gctactactg	aaggatgctt	ggtagccagc	acaaatcggg	gttgctcgtg	aattttcttg	2160
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ttcccatcaa	ttattgattc	agtgaatgt	attgcatgga	ttgattcaga	ggaagggttc	2280



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cattccctac atgtgaaacc atttctggt aaaagtgact tatctgtaaa tccggagata	3240
tcccattata ctatgtagct tgtatatgta gacaatttta ctgtcagttt ttaaaacacc	3300
cttgtatatac attactaagc cctagatttg aaggttaaca aataagttgt atgctcgaat	3360
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cgatagaaat aaacaaagta tacttc	3446

<210> 167

<211> 1287

<212> DNA

<213> PSEUDOMONAS mevalonii

<400> 167

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gccctgccga tggacatcgc caacggcatg atcgaaaacg tcatcggcac cttcgagctg	180
ccctatgccg tggccagcaa cttccagatc aatggccgtg atgtgctggt gccgctggtg	240
gtggaagagc cctcgatcgt cgccgctgct tcgtacatgg ccaagctggc ccgtgccaac	300
ggcggcttca ccacctcag cagcgccccg ctgatgcatg ccaggtaca gatcgtcggc	360
atacaggacc cgctcaatgc acgcctgagc ctgctgcgcc gcaaagacga aatcattgaa	420

ctggccaacc gcaaggacca gttgctcaac agcctcggcg gcggctgccg cgacatcgaa 480  
 gtgcacacct tcgccgatac cccgcgtggc ccgatgctgg tggcgcacct gatcgctgat 540  
 gtacgcgatg ccatggggcg caacaccgtc aataccatgg ccgaggccgt tgcgccgtg 600  
 atggaagcca tcaccggggg ccagggtacgc ctgcgcatte tgtccaacct ggccgacctg 660  
 cgcctggcca gggcccaggt gcggattact ccgcagcaac tggaaacggc cgaattcagt 720  
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 cgcgcggcca cccacaacaa gggcatcatg aatggcatcg acccactgat cgtcgccact 840  
 ggcaacgact ggcgtgcagt ggaagccggc gcccatgctg atgcctgccg cagtggtcac 900  
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 atgccgatgc ccgtaggcct ggtcggcggc gccacaaaa cccatccgtt ggcgcaactg 1020  
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 ggctggcgcc aaacactcgg ggccatgcgc gccctggcca ccgaaggcat ccagcgcggc 1140  
 cacatggccc tgcatgcgcg caatattgcc gtggtggcgg gcgcccagg cgatgaggtg 1200  
 gactgggttg cccggcagtt ggtggaatac cacgacgtgc gcgccgacc cgccgtagca 1260  
 ctgctgaaac aaaagcgcg ccaatga 1287

<210> 168

<211> 1054

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 168

Met Pro Pro Leu Phe Lys Gly Leu Lys Gln Met Ala Lys Pro Ile Ala  
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Tyr Val Ser Arg Phe Ser Ala Lys Arg Pro Ile His Ile Ile Leu Phe  
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Ser Leu Ile Ile Ser Ala Phe Ala Tyr Leu Ser Val Ile Gln Tyr Tyr  
35 40 45

Phe Asn Gly Trp Gln Leu Asp Ser Asn Ser Val Phe Glu Thr Ala Pro  
50 55 60

Asn Lys Asp Ser Asn Thr Leu Phe Gln Glu Cys Ser His Tyr Tyr Arg  
65 70 75 80

Asp Ser Ser Leu Asp Gly Trp Val Ser Ile Thr Ala His Glu Ala Ser  
85 90 95

Glu Leu Pro Ala Pro His His Tyr Tyr Leu Leu Asn Leu Asn Phe Asn  
 100 105 110

Ser Pro Asn Glu Thr Asp Ser Ile Pro Glu Leu Ala Asn Thr Val Phe  
 115 120 125

Glu Lys Asp Asn Thr Lys Tyr Ile Leu Gln Glu Asp Leu Ser Val Ser  
 130 135 140

Lys Glu Ile Ser Ser Thr Asp Gly Thr Lys Trp Arg Leu Arg Ser Asp  
 145 150 155 160

Arg Lys Ser Leu Phe Asp Val Lys Thr Leu Ala Tyr Ser Leu Tyr Asp  
 165 170 175

Val Phe Ser Glu Asn Val Thr Gln Ala Asp Pro Phe Asp Val Leu Ile  
 180 185 190

Met Val Thr Ala Tyr Leu Met Met Phe Tyr Thr Ile Phe Gly Leu Phe  
 195 200 205

Asn Asp Met Arg Lys Thr Gly Ser Asn Phe Trp Leu Ser Ala Ser Thr  
 210 215 220

Val Val Asn Ser Ala Ser Ser Leu Phe Leu Ala Leu Tyr Val Thr Gln  
 225 230 235 240

Cys Ile Leu Gly Lys Glu Val Ser Ala Leu Thr Leu Phe Glu Gly Leu  
 245 250 255

Pro Phe Ile Val Val Val Val Gly Phe Lys His Lys Ile Lys Ile Ala  
 260 265 270

Gln Tyr Ala Leu Glu Lys Phe Glu Arg Val Gly Leu Ser Lys Arg Ile  
 275 280 285

Thr Thr Asp Glu Ile Val Phe Glu Ser Val Ser Glu Glu Gly Gly Arg  
 290 295 300

Leu Ile Gln Asp His Leu Leu Cys Ile Phe Ala Phe Ile Gly Cys Ser  
 305 310 315 320

Met Tyr Ala His Gln Leu Lys Thr Leu Thr Asn Phe Cys Ile Leu Ser  
 325 330 335

Ala Phe Ile Leu Ile Phe Glu Leu Ile Leu Thr Pro Thr Phe Tyr Ser  
340 345 350

Ala Ile Leu Ala Leu Arg Leu Glu Met Asn Val Ile His Arg Ser Thr  
355 360 365

Ile Ile Lys Gln Thr Leu Glu Glu Asp Gly Val Val Pro Ser Thr Ala  
370 375 380

Arg Ile Ile Ser Lys Ala Glu Lys Lys Ser Val Ser Ser Phe Leu Asn  
385 390 395 400

Leu Ser Val Val Val Ile Ile Met Lys Leu Ser Val Ile Leu Leu Phe  
405 410 415

Val Phe Ile Asn Phe Tyr Asn Phe Gly Ala Asn Trp Val Asn Asp Ala  
420 425 430

Phe Asn Ser Leu Tyr Phe Asp Lys Glu Arg Val Ser Leu Pro Asp Phe  
435 440 445

Ile Thr Ser Asn Ala Ser Glu Asn Phe Lys Glu Gln Ala Ile Val Ser  
450 455 460

Val Thr Pro Leu Leu Tyr Tyr Lys Pro Ile Lys Ser Tyr Gln Arg Ile  
465 470 475 480

Glu Asp Met Val Leu Leu Leu Leu Arg Asn Val Ser Val Ala Ile Arg  
485 490 495

Asp Arg Phe Val Ser Lys Leu Val Leu Ser Ala Leu Val Cys Ser Ala  
500 505 510

Val Ile Asn Val Tyr Leu Leu Asn Ala Ala Arg Ile His Thr Ser Tyr  
515 520 525

Thr Ala Asp Gln Leu Val Lys Thr Glu Val Thr Lys Lys Ser Phe Thr  
530 535 540

Ala Pro Val Gln Lys Ala Ser Thr Pro Val Leu Thr Asn Lys Thr Val  
545 550 555 560

Ile Ser Gly Ser Lys Val Lys Ser Leu Ser Ser Ala Gln Ser Ser Ser  
565 570 575

Ser Gly Pro Ser Ser Ser Ser Glu Glu Asp Asp Ser Arg Asp Ile Glu

580					585					590					
Ser	Leu	Asp	Lys	Lys	Ile	Arg	Pro	Leu	Glu	Glu	Leu	Glu	Ala	Leu	Leu
		595					600					605			
Ser	Ser	Gly	Asn	Thr	Lys	Gln	Leu	Lys	Asn	Lys	Glu	Val	Ala	Ala	Leu
	610					615					620				
Val	Ile	His	Gly	Lys	Leu	Pro	Leu	Tyr	Ala	Leu	Glu	Lys	Lys	Leu	Gly
625					630					635					640
Asp	Thr	Thr	Arg	Ala	Val	Ala	Val	Arg	Arg	Lys	Ala	Leu	Ser	Ile	Leu
				645					650					655	
Ala	Glu	Ala	Pro	Val	Leu	Ala	Ser	Asp	Arg	Leu	Pro	Tyr	Lys	Asn	Tyr
			660					665						670	
Asp	Tyr	Asp	Arg	Val	Phe	Gly	Ala	Cys	Cys	Glu	Asn	Val	Ile	Gly	Tyr
		675					680					685			
Met	Pro	Leu	Pro	Val	Gly	Val	Ile	Gly	Pro	Leu	Val	Ile	Asp	Gly	Thr
	690					695					700				
Ser	Tyr	His	Ile	Pro	Met	Ala	Thr	Thr	Glu	Gly	Cys	Leu	Val	Ala	Ser
705					710					715					720
Ala	Met	Arg	Gly	Cys	Lys	Ala	Ile	Asn	Ala	Gly	Gly	Gly	Ala	Thr	Thr
				725					730					735	
Val	Leu	Thr	Lys	Asp	Gly	Met	Thr	Arg	Gly	Pro	Val	Val	Arg	Phe	Pro
			740					745					750		
Thr	Leu	Lys	Arg	Ser	Gly	Ala	Cys	Lys	Ile	Trp	Leu	Asp	Ser	Glu	Glu
		755					760					765			
Gly	Gln	Asn	Ala	Ile	Lys	Lys	Ala	Phe	Asn	Ser	Thr	Ser	Arg	Phe	Ala
	770					775					780				
Arg	Leu	Gln	His	Ile	Gln	Thr	Cys	Leu	Ala	Gly	Asp	Leu	Leu	Phe	Met
785					790					795					800
Arg	Phe	Arg	Thr	Thr	Thr	Gly	Asp	Ala	Met	Gly	Met	Asn	Met	Ile	Ser
				805					810					815	
Lys	Gly	Val	Glu	Tyr	Ser	Leu	Lys	Gln	Met	Val	Glu	Glu	Tyr	Gly	Trp
		820						825					830		

Glu Asp Met Glu Val Val Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys  
835 840 845

Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val  
850 855 860

Ala Glu Ala Thr Ile Pro Gly Asp Val Val Arg Lys Val Leu Lys Ser  
865 870 875 880

Asp Val Ser Ala Leu Val Glu Leu Asn Ile Ala Lys Asn Leu Val Gly  
885 890 895

Ser Ala Met Ala Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn  
900 905 910

Leu Val Thr Ala Val Phe Leu Ala Leu Gly Gln Asp Pro Ala Gln Asn  
915 920 925

Val Glu Ser Ser Asn Cys Ile Thr Leu Met Lys Glu Val Asp Gly Asp  
930 935 940

Leu Arg Ile Ser Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile Gly  
945 950 955 960

Gly Gly Thr Val Leu Glu Pro Gln Gly Ala Met Leu Asp Leu Leu Gly  
965 970 975

Val Arg Gly Pro His Ala Thr Ala Pro Gly Thr Asn Ala Arg Gln Leu  
980 985 990

Ala Arg Ile Val Ala Cys Ala Val Leu Ala Gly Glu Leu Ser Leu Cys  
995 1000 1005

Ala Ala Leu Ala Ala Gly His Leu Val Gln Ser His Met Thr His  
1010 1015 1020

Asn Arg Lys Pro Ala Glu Pro Thr Lys Pro Asn Asn Leu Asp Ala  
1025 1030 1035

Thr Asp Ile Asn Arg Leu Lys Asp Gly Ser Val Thr Cys Ile Lys  
1040 1045 1050

Ser

<210> 169  
 <211> 888  
 <212> PRT  
 <213> Human

<400> 169

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Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
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Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
 35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
 50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
 65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
 85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125

Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Thr Leu Ala Lys Phe Ala  
 130 135 140

Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly  
 145 150 155 160

Met Ala Ile Leu Gly Pro Thr Phe Thr Leu Asp Ala Leu Val Glu Cys  
 165 170 175

Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Arg Gln Leu Glu Ile  
 180 185 190

Met Cys Cys Phe Gly Cys Met Ser Val Leu Ala Asn Tyr Phe Val Phe  
 195 200 205

Met Thr Phe Phe Pro Ala Cys Val Ser Leu Val Leu Glu Leu Ser Arg

210	215	220															
Glu Ser Arg Glu Gly Arg Pro Ile Trp Gln Leu Ser His Phe Ala Arg																	
225					230					235							240
Val Leu Glu Glu Glu Glu Asn Lys Pro Asn Pro Val Thr Gln Arg Val																	
				245					250								255
Lys Met Ile Met Ser Leu Gly Leu Val Leu Val His Ala His Ser Arg																	
			260					265									270
Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Ala Asp Thr Ser Lys																	
			275					280						285			
Val Ser Leu Gly Leu Asp Glu Asn Val Ser Lys Arg Ile Glu Pro Ser																	
			290				295							300			
Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile																	
305					310					315							320
Glu Gln Val Ile Thr Leu Ser Leu Ala Leu Leu Leu Ala Val Lys Tyr																	
				325					330								335
Ile Phe Phe Glu Gln Thr Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn																	
			340					345								350	
Pro Ile Thr Ser Pro Val Val Thr Gln Lys Lys Val Pro Asp Asn Cys																	
			355					360						365			
Cys Arg Arg Glu Pro Met Leu Val Arg Asn Asn Gln Lys Cys Asp Ser																	
			370				375						380				
Val Glu Glu Glu Thr Gly Ile Asn Arg Glu Arg Lys Val Glu Val Ile																	
385						390				395							400
Lys Pro Leu Val Ala Glu Thr Asp Thr Pro Asn Arg Ala Thr Phe Val																	
				405					410								415
Val Gly Asn Ser Ser Leu Leu Asp Thr Ser Ser Val Leu Val Thr Gln																	
			420					425									430
Glu Pro Glu Ile Glu Leu Pro Arg Glu Pro Arg Pro Asn Glu Glu Cys																	
			435					440						445			
Leu Gln Ile Leu Gly Asn Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp																	
			450				455						460				



Ala Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys  
465 470 475 480

Leu Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg  
485 490 495

Gln Leu Leu Ser Lys Lys Leu Ser Glu Pro Ser Ser Leu Gln Tyr Leu  
500 505 510

Pro Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu  
515 520 525

Asn Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu  
530 535 540

Cys Leu Asp Glu Lys Glu Phe Gln Val Pro Met Ala Thr Thr Glu Gly  
545 550 555 560

Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly  
565 570 575

Gly Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro  
580 585 590

Val Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp  
595 600 605

Leu Glu Thr Ser Glu Gly Phe Ala Val Ile Lys Glu Ala Phe Asp Ser  
610 615 620

Thr Ser Arg Phe Ala Arg Leu Gln Lys Leu His Thr Ser Ile Ala Gly  
625 630 635 640

Arg Asn Leu Tyr Ile Arg Phe Gln Ser Arg Ser Gly Asp Ala Met Gly  
645 650 655

Met Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Ser Lys Leu His  
660 665 670

Glu Tyr Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys  
675 680 685

Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys  
690 695 700

Ser Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val  
705 710 715 720

Leu Lys Thr Thr Thr Glu Ala Met Ile Glu Val Asn Ile Asn Lys Asn  
725 730 735

Leu Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His  
740 745 750

Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala  
755 760 765

Ala Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser  
770 775 780

Gly Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile  
785 790 795 800

Glu Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala  
805 810 815

Cys Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly  
820 825 830

Glu Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala  
835 840 845

Gly Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Lys  
850 855 860

Ser His Met Ile His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln  
865 870 875 880

Gly Ala Cys Thr Lys Lys Thr Ala  
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<210> 170

<211> 887

<212> PRT

<213> Mesocricetus auratus

<400> 170

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
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Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met

20					25					30					
Ser	Met	Asn	Met	Phe	Thr	Gly	Asn	Asn	Lys	Ile	Cys	Gly	Trp	Asn	Tyr
		35					40					45			
Glu	Cys	Pro	Lys	Phe	Glu	Glu	Asp	Val	Leu	Ser	Ser	Asp	Ile	Ile	Ile
	50					55					60				
Leu	Thr	Ile	Thr	Arg	Cys	Ile	Ala	Ile	Leu	Tyr	Ile	Tyr	Phe	Gln	Phe
65					70					75					80
Gln	Asn	Leu	Arg	Gln	Leu	Gly	Ser	Lys	Tyr	Ile	Leu	Gly	Ile	Ala	Gly
				85					90					95	
Leu	Phe	Thr	Ile	Phe	Ser	Ser	Phe	Val	Phe	Ser	Thr	Val	Val	Ile	His
			100					105					110		
Phe	Leu	Asp	Lys	Glu	Leu	Thr	Gly	Leu	Asn	Glu	Ala	Leu	Pro	Phe	Phe
		115					120					125			
Leu	Leu	Leu	Ile	Asp	Leu	Ser	Arg	Ala	Ser	Ala	Leu	Ala	Lys	Phe	Ala
	130					135					140				
Leu	Ser	Ser	Asn	Ser	Gln	Asp	Glu	Val	Arg	Glu	Asn	Ile	Ala	Arg	Gly
145					150					155					160
Met	Ala	Ile	Leu	Gly	Pro	Thr	Phe	Thr	Leu	Asp	Ala	Leu	Val	Glu	Cys
				165					170					175	
Leu	Val	Ile	Gly	Val	Gly	Thr	Met	Ser	Gly	Val	Arg	Gln	Leu	Glu	Ile
			180					185					190		
Met	Cys	Cys	Phe	Gly	Cys	Met	Ser	Val	Leu	Ala	Asn	Tyr	Phe	Val	Phe
		195					200					205			
Met	Thr	Phe	Phe	Pro	Ala	Cys	Val	Ser	Leu	Val	Leu	Glu	Leu	Ser	Arg
	210					215					220				
Glu	Ser	Arg	Glu	Gly	Arg	Pro	Ile	Trp	Gln	Leu	Ser	His	Phe	Ala	Arg
225					230					235					240
Val	Leu	Glu	Glu	Glu	Glu	Asn	Lys	Pro	Asn	Pro	Val	Thr	Gln	Arg	Val
				245					250					255	
Lys	Met	Ile	Met	Ser	Leu	Gly	Leu	Val	Leu	Val	His	Ala	His	Ser	Arg
			260					265					270		

Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Thr Glu His Ser Lys  
275 280 285

Val Ser Leu Gly Leu Asp Glu Asp Val Ser Lys Arg Ile Glu Pro Ser  
290 295 300

Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile  
305 310 315 320

Glu Gln Val Val Thr Leu Ser Leu Ala Phe Leu Leu Ala Val Lys Tyr  
325 330 335

Ile Phe Phe Glu Gln Ala Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn  
340 345 350

Pro Ile Thr Ser Pro Val Val Thr Pro Lys Lys Ala Pro Asp Asn Cys  
355 360 365

Cys Arg Arg Glu Pro Leu Leu Val Arg Arg Ser Glu Lys Leu Ser Ser  
370 375 380

Val Glu Glu Glu Pro Gly Val Ser Gln Asp Arg Lys Val Glu Val Ile  
385 390 395 400

Lys Pro Leu Val Val Glu Thr Glu Ser Ala Ser Arg Ala Thr Phe Val  
405 410 415

Leu Gly Ala Ser Gly Thr Ser Pro Pro Val Ala Ala Arg Thr Gln Glu  
420 425 430

Leu Glu Ile Glu Leu Pro Ser Glu Pro Arg Pro Asn Glu Glu Cys Leu  
435 440 445

Gln Ile Leu Glu Ser Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp Ala  
450 455 460

Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys Leu  
465 470 475 480

Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg Gln  
485 490 495

Leu Leu Ser Thr Lys Leu Pro Glu Pro Ser Ser Leu Gln Tyr Leu Pro  
500 505 510

Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu Asn  
515 520 525

Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu Cys  
530 535 540

Leu Asp Gly Lys Glu Tyr Gln Val Pro Met Ala Thr Thr Glu Gly Cys  
545 550 555 560

Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly Gly  
565 570 575

Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro Val  
580 585 590

Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp Leu  
595 600 605

Glu Thr Pro Glu Gly Phe Ala Val Ile Lys Asp Ala Phe Asp Ser Thr  
610 615 620

Ser Arg Phe Ala Arg Leu Gln Lys Leu His Val Thr Met Ala Gly Arg  
625 630 635 640

Asn Leu Tyr Ile Arg Phe Gln Ser Lys Thr Gly Asp Ala Met Gly Met  
645 650 655

Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Leu Lys Leu Gln Glu  
660 665 670

Phe Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr  
675 680 685

Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys Thr  
690 695 700

Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val Leu  
705 710 715 720

Lys Thr Thr Thr Glu Ala Met Ile Asp Val Asn Ile Asn Lys Asn Leu  
725 730 735

Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala  
740 745 750

Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala Ala  
755 760 765

Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly  
770 775 780

Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile Glu  
785 790 795 800

Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys  
805 810 815

Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu  
820 825 830

Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly  
835 840 845

Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Arg Ser  
850 855 860

His Met Val His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly  
865 870 875 880

Thr Cys Thr Lys Lys Ser Ala  
885

<210> 171  
<211> 424  
<212> PRT  
<213> Streptococcus pneumoniae

<400> 171

Met Lys Ile Ser Trp Asn Gly Phe Ser Lys Lys Ser Tyr Gln Glu Arg  
1 5 10 15

Leu Glu Leu Leu Lys Ala Gln Ala Leu Leu Ser Pro Glu Arg Gln Ala  
20 25 30

Ser Leu Glu Lys Asp Glu Gln Met Ser Val Thr Val Ala Asp Gln Leu  
35 40 45

Ser Glu Asn Val Val Gly Thr Phe Ser Leu Pro Tyr Ser Leu Val Pro  
50 55 60

Glu Val Leu Val Asn Gly Gln Gly Tyr Thr Val Pro Tyr Val Thr Glu  
65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Ala Ser Lys Ile Ile Lys  
85 90 95

Arg Ala Gly Gly Phe Thr Ala Gln Val His Gln Arg Gln Met Ile Gly  
100 105 110

Gln Val Ala Leu Tyr Gln Val Ala Asn Pro Lys Leu Ala Gln Glu Lys  
115 120 125

Ile Ala Ser Lys Lys Ala Glu Leu Leu Glu Leu Ala Asn Gln Ala Tyr  
130 135 140

Pro Ser Ile Val Lys Arg Gly Gly Gly Ala Arg Asp Leu His Val Glu  
145 150 155 160

Gln Ile Lys Gly Glu Pro Asp Phe Leu Val Val Tyr Ile His Val Asp  
165 170 175

Thr Gln Glu Ala Met Gly Ala Asn Met Leu Asn Thr Met Leu Glu Ala  
180 185 190

Leu Lys Pro Val Leu Glu Glu Leu Ser Gln Gly Gln Ser Leu Met Gly  
195 200 205

Ile Leu Ser Asn Tyr Ala Thr Asp Ser Leu Val Thr Ala Ser Cys Arg  
210 215 220

Ile Ala Phe Arg Tyr Leu Ser Arg Gln Lys Asp Gln Gly Arg Glu Ile  
225 230 235 240

Ala Glu Lys Ile Ala Leu Ala Ser Gln Phe Ala Gln Ala Asp Pro Tyr  
245 250 255

Arg Ala Ala Thr His Asn Lys Gly Ile Phe Asn Gly Ile Asp Ala Ile  
260 265 270

Leu Ile Ala Thr Gly Asn Asp Trp Arg Ala Ile Glu Ala Gly Ala His  
275 280 285

Ala Phe Ala Ser Arg Asp Gly Arg Tyr Gln Gly Leu Ser Cys Trp Thr  
290 295 300

Leu Asp Leu Glu Arg Glu Glu Leu Val Gly Glu Met Thr Leu Pro Met  
305 310 315 320

Pro Val Ala Thr Lys Gly Gly Ser Ile Gly Leu Asn Pro Arg Val Ala  
 325 330 335

Leu Ser His Asp Leu Leu Gly Asn Pro Ser Ala Arg Glu Leu Ala Gln  
 340 345 350

Ile Ile Val Ser Ile Gly Leu Ala Gln Asn Phe Ala Ala Leu Lys Ala  
 355 360 365

Leu Val Ser Thr Gly Ile Gln Gln Gly His Met Lys Leu Gln Ala Lys  
 370 375 380

Ser Leu Ala Leu Leu Ala Gly Ala Ser Glu Ser Glu Val Ala Pro Leu  
 385 390 395 400

Val Glu Arg Leu Ile Ser Asp Lys Thr Phe Asn Leu Glu Thr Ala Gln  
 405 410 415

Arg Tyr Leu Glu Asn Leu Arg Ser  
 420

<210> 172

<211> 425

<212> PRT

<213> Streptococcus pyogenes

<400> 172

Met Thr Lys Thr Asn Leu Asn Trp Ser Gly Phe Ser Lys Lys Thr Phe  
 1 5 10 15

Glu Glu Arg Leu Gln Leu Ile Glu Lys Phe Lys Leu Leu Asn Ala Glu  
 20 25 30

Asn Leu Asn Gln Leu Lys Thr Asp Val Leu Leu Pro Ile Gln Thr Ala  
 35 40 45

Asn Gln Met Thr Glu Asn Val Leu Gly Arg Leu Ala Leu Pro Phe Ser  
 50 55 60

Ile Ala Pro Asp Phe Leu Val Asn Gly Ser Thr Tyr Gln Met Pro Phe  
 65 70 75 80

Val Thr Glu Glu Pro Ser Val Val Ala Ala Ala Ser Phe Ala Ala Lys  
 85 90 95

Leu Ile Lys Arg Ser Gly Gly Phe Lys Ala Gln Thr Leu Asn Arg Gln



100					105					110					
Met	Ile	Gly	Gln	Ile	Val	Leu	Tyr	Asp	Ile	Asp	Gln	Ile	Asp	Asn	Ala
		115					120					125			
Lys	Ala	Ala	Ile	Leu	His	Lys	Thr	Lys	Lys	Leu	Ile	Ala	Leu	Ala	Asn
	130					135					140				
Lys	Ala	Tyr	Pro	Ser	Ile	Val	Lys	Arg	Gly	Gly	Gly	Ala	Arg	Thr	Ile
145					150					155					160
His	Leu	Glu	Glu	Lys	Gly	Glu	Phe	Leu	Ile	Phe	Tyr	Leu	Thr	Val	Asp
				165					170					175	
Thr	Gln	Glu	Ala	Met	Gly	Ala	Asn	Met	Val	Asn	Thr	Met	Met	Glu	Ala
			180					185					190		
Leu	Val	Pro	Asp	Leu	Thr	Arg	Leu	Ser	Lys	Gly	His	Cys	Leu	Met	Ala
		195					200					205			
Ile	Leu	Ser	Asn	Tyr	Ala	Thr	Glu	Ser	Leu	Val	Thr	Thr	Ser	Cys	Glu
	210					215					220				
Ile	Pro	Val	Arg	Leu	Leu	Asp	Arg	Asp	Lys	Thr	Lys	Ser	Leu	Gln	Leu
225					230					235					240
Ala	Gln	Lys	Ile	Glu	Leu	Ala	Ser	Arg	Leu	Ala	Gln	Val	Asp	Pro	Tyr
				245					250					255	
Arg	Ala	Thr	Thr	His	Asn	Lys	Gly	Ile	Phe	Asn	Gly	Ile	Asp	Ala	Val
			260					265					270		
Val	Ile	Ala	Thr	Gly	Asn	Asp	Trp	Arg	Ala	Ile	Glu	Ala	Gly	Ala	His
		275					280					285			
Ala	Tyr	Ala	Ser	Arg	Asn	Gly	Ser	Tyr	Gln	Gly	Leu	Ser	Gln	Trp	His
	290					295					300				
Phe	Asp	Gln	Asp	Lys	Gln	Val	Leu	Leu	Gly	Gln	Met	Thr	Leu	Pro	Met
305					310					315					320
Pro	Ile	Ala	Ser	Lys	Gly	Gly	Ser	Ile	Gly	Leu	Asn	Pro	Thr	Val	Ser
				325					330					335	
Ile	Ala	His	Asp	Leu	Leu	Asn	Gln	Pro	Asp	Ala	Lys	Thr	Leu	Ala	Gln
			340					345					350		

Leu Ile Ala Ser Val Gly Leu Ala Gln Asn Phe Ala Ala Leu Lys Ala  
 355 360 365

Leu Thr Ser Ser Gly Ile Gln Ala Gly His Met Lys Leu His Ala Lys  
 370 375 380

Ser Leu Ala Leu Leu Ala Gly Ala Thr Gln Asp Glu Ile Ala Pro Leu  
 385 390 395 400

Val Asn Ala Leu Leu Ala Asp Lys Pro Ile Asn Leu Glu Lys Ala His  
 405 410 415

Phe Tyr Leu Ser Gln Leu Arg Gln Ser  
 420 425

<210> 173  
 <211> 425  
 <212> PRT  
 <213> Staphylococcus epidermidis

<400> 173

Met Lys Ser Leu Asp Lys Gly Phe Arg His Leu Thr Arg Lys Asp Lys  
 1 5 10 15

Leu Lys Lys Leu Val Glu Tyr Gly Trp Leu Asp Asp Glu Asn Tyr Glu  
 20 25 30

Ile Leu Leu Asn His Pro Leu Ile Asn Glu Glu Val Ala Asn Ser Leu  
 35 40 45

Ile Glu Asn Val Ile Gly Gln Gly Ala Leu Pro Val Gly Leu Leu Pro  
 50 55 60

Arg Ile Ile Val Asp Asp Lys Glu Tyr Val Val Pro Met Met Val Glu  
 65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Gly Ala Lys Leu Val Asn  
 85 90 95

Gln Ser Gly Gly Phe Lys Thr Ile Ser Ser Glu Arg Leu Met Ile Gly  
 100 105 110

Gln Ile Val Phe Asp Asp Val Glu Asp Thr Gly Thr Leu Ala Asn Ser  
 115 120 125

Ile Tyr Gln Ile Glu Ser Gln Ile His Gln Ile Ala Asp Glu Ala Tyr  
 130 135 140

Pro Ser Ile Lys Ala Arg Gly Gly Gly Tyr Gln Arg Ile Glu Ile Asp  
 145 150 155 160

Thr Phe Pro Asn His Arg Leu Leu Ser Leu Lys Val Phe Val Asp Thr  
 165 170 175

Lys Asp Ala Met Gly Ala Asn Met Leu Ile Thr Ile Leu Glu Ala Ile  
 180 185 190

Thr Ala His Leu Lys Val Lys Ile Phe Asn Gln Asn Val Leu Met Ser  
 195 200 205

Ile Leu Ser Asn His Ala Thr Ala Ser Val Val Gln Val Gln Gly Glu  
 210 215 220

Ile Asp Ile Glu Asp Leu His Arg Gly Glu Arg Ser Gly Glu Glu Val  
 225 230 235 240

Ala Gln Arg Met Glu Arg Ala Ser Val Leu Ala Gln Val Asp Ile His  
 245 250 255

Arg Ala Ala Thr His Asn Lys Gly Val Met Asn Gly Ile His Ala Val  
 260 265 270

Val Leu Ala Thr Gly Asn Asp Thr Arg Gly Val Glu Ala Ser Ala His  
 275 280 285

Ala Tyr Ala Ser Lys Asp Gly His Tyr Arg Gly Ile Ala Thr Trp Glu  
 290 295 300

Tyr Asp Arg Ser Arg Asn Lys Leu Val Gly Thr Ile Glu Val Pro Met  
 305 310 315 320

Thr Leu Ala Thr Val Gly Gly Gly Thr Lys Val Leu Pro Ile Ala Lys  
 325 330 335

Ala Ser Leu Asn Leu Leu Asn Val Glu Asn Ala Gln Glu Leu Gly Gln  
 340 345 350

Val Val Ala Ala Val Gly Leu Ala Gln Asn Phe Ser Ala Cys Arg Ala  
 355 360 365

Leu Val Ser Glu Gly Ile Gln Gln Gly His Met Ser Leu Gln Tyr Lys

370

375

380

Ser Leu Ala Ile Val Val Gly Ala Lys Gly Glu Glu Ile Ala Gln Val  
 385 390 395 400

Ala Glu Ala Leu Lys Tyr Glu Ser Gln Ala Asn Thr Ala Lys Ala Gln  
 405 410 415

Glu Ile Leu Met Asn Ile Arg Lys Ser  
 420 425

<210> 174

<211> 425

<212> PRT

<213> Staphylococcus haemolyticus

<400> 174

Met Lys Ser Leu Asp Lys Thr Phe Arg His Leu Ser Arg Glu Asp Lys  
 1 5 10 15

Leu Lys Gln Leu Val Asp Tyr Gly Trp Leu Thr Asp Glu Ser Tyr Asp  
 20 25 30

Val Leu Leu Lys Asn Pro Leu Ile Asn Glu Glu Val Ala Asn Ser Leu  
 35 40 45

Ile Glu Asn Val Ile Gly Gln Gly Thr Leu Pro Val Gly Leu Leu Pro  
 50 55 60

Lys Ile Ile Val Asp Asp Lys Glu Tyr Val Val Pro Met Met Val Glu  
 65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Gly Ala Lys Leu Val Asn  
 85 90 95

Asn Thr Gly Gly Phe Lys Thr Val Lys Ser Glu Arg Leu Met Ile Gly  
 100 105 110

Gln Ile Val Phe Asp Asp Val Ser Asp Thr Asp Ala Leu Ala Gln Ala  
 115 120 125

Ile Tyr Asp Leu Glu Pro Gln Ile Lys Gln Ile Ala Ala Glu Ala Tyr  
 130 135 140

Pro Ser Ile Ile Glu Arg Gly Gly Gly Tyr Arg Arg Ile Glu Ile Asp  
 145 150 155 160

Thr Phe Pro Glu Asn Gln Leu Leu Ser Leu Lys Val Phe Val Asp Thr  
165 170 175

Lys Asp Ala Met Gly Ala Asn Met Leu Asn Thr Ile Leu Glu Ala Ile  
180 185 190

Thr Ala His Met Lys Asn Glu Phe Pro Asn Arg Asp Val Leu Met Ser  
195 200 205

Ile Leu Ser Asn His Ala Thr Ala Ser Val Val Arg Val Gln Gly Glu  
210 215 220

Ile Asp Ile Lys Asp Leu Asn Lys Gly Asp Arg Ser Gly Glu Glu Val  
225 230 235 240

Ala Gln Arg Met Glu Arg Ala Ser Val Leu Ala Gln Val Asp Ile His  
245 250 255

Arg Ala Ala Thr His Asn Lys Gly Val Met Asn Gly Ile His Ala Val  
260 265 270

Val Leu Ala Thr Gly Asn Asp Thr Arg Gly Ala Glu Ala Ser Ala His  
275 280 285

Ala Tyr Ala Ser Arg Asp Gly Gln Tyr Arg Gly Ile Ala Thr Trp Lys  
290 295 300

Phe Asp Lys Glu Arg Gly Arg Leu Val Gly Thr Ile Glu Val Pro Met  
305 310 315 320

Thr Leu Ala Ile Val Gly Gly Gly Thr Lys Val Leu Pro Ile Ala Lys  
325 330 335

Ala Ser Leu Glu Leu Leu Asn Val Gln Ser Ala Gln Glu Leu Gly Gln  
340 345 350

Val Val Ala Ala Val Gly Leu Ala Gln Asn Phe Ser Ala Cys Arg Ala  
355 360 365

Leu Val Ser Glu Gly Ile Gln Lys Gly His Met Ser Leu Gln Tyr Lys  
370 375 380

Ser Leu Ala Ile Val Val Gly Ala Gln Gly Asp Glu Ile Ala Arg Val  
385 390 395 400

Ala Glu Ala Leu Lys Ala Ala Pro Lys Ala Asn Thr Ala Thr Ala Gln  
405 410 415

Gln Ile Leu Lys Asp Leu Arg Gln Gln  
420 425

<210> 175

<211> 425

<212> PRT

<213> Staphylococcus aureus

<400> 175

Met Gln Ser Leu Asp Lys Asn Phe Arg His Leu Ser Arg Gln Gln Lys  
1 5 10 15

Leu Gln Gln Leu Val Asp Lys Gln Trp Leu Ser Glu Asp Gln Phe Asp  
20 25 30

Ile Leu Leu Asn His Pro Leu Ile Asp Glu Glu Val Ala Asn Ser Leu  
35 40 45

Ile Glu Asn Val Ile Ala Gln Gly Ala Leu Pro Val Gly Leu Leu Pro  
50 55 60

Asn Ile Ile Val Asp Asp Lys Ala Tyr Val Val Pro Met Met Val Glu  
65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Gly Ala Lys Leu Val Asn  
85 90 95

Gln Thr Gly Gly Phe Lys Thr Val Ser Ser Glu Arg Ile Met Ile Gly  
100 105 110

Gln Ile Val Phe Asp Gly Val Asp Asp Thr Glu Lys Leu Ser Ala Asp  
115 120 125

Ile Lys Ala Leu Glu Lys Gln Ile His Lys Ile Ala Asp Glu Ala Tyr  
130 135 140

Pro Ser Ile Lys Ala Arg Gly Gly Gly Tyr Gln Arg Ile Ala Ile Asp  
145 150 155 160

Thr Phe Pro Glu Gln Gln Leu Leu Ser Leu Lys Val Phe Val Asp Thr  
165 170 175

Lys Asp Ala Met Gly Ala Asn Met Leu Asn Thr Ile Leu Glu Ala Ile  
180 185 190

Thr Ala Phe Leu Lys Asn Glu Ser Pro Gln Ser Asp Ile Leu Met Ser  
 195 200 205

Ile Leu Ser Asn His Ala Thr Ala Ser Val Val Lys Val Gln Gly Glu  
 210 215 220

Ile Asp Val Lys Asp Leu Ala Arg Gly Glu Arg Thr Gly Glu Glu Val  
 225 230 235 240

Ala Lys Arg Met Glu Arg Ala Ser Val Leu Ala Gln Val Asp Ile His  
 245 250 255

Arg Ala Ala Thr His Asn Lys Gly Val Met Asn Gly Ile His Ala Val  
 260 265 270

Val Leu Ala Thr Gly Asn Asp Thr Arg Gly Ala Glu Ala Ser Ala His  
 275 280 285

Ala Tyr Ala Ser Arg Asp Gly Gln Tyr Arg Gly Ile Ala Thr Trp Arg  
 290 295 300

Tyr Asp Gln Lys Arg Gln Arg Leu Ile Gly Thr Ile Glu Val Pro Met  
 305 310 315 320

Thr Leu Ala Ile Val Gly Gly Gly Thr Lys Val Leu Pro Ile Ala Lys  
 325 330 335

Ala Ser Leu Glu Leu Leu Asn Val Asp Ser Ala Gln Glu Leu Gly His  
 340 345 350

Val Val Ala Ala Val Gly Leu Ala Gln Asn Phe Ala Ala Cys Arg Ala  
 355 360 365

Leu Val Ser Glu Gly Ile Gln Gln Gly His Met Ser Leu Gln Tyr Lys  
 370 375 380

Ser Leu Ala Ile Val Val Gly Ala Lys Gly Asp Glu Ile Ala Gln Val  
 385 390 395 400

Ala Glu Ala Leu Lys Gln Glu Pro Arg Ala Asn Thr Gln Val Ala Glu  
 405 410 415

Arg Ile Leu Gln Glu Ile Arg Gln Gln  
 420 425

<210> 176  
 <211> 866  
 <212> PRT  
 <213> Ips paraconfusus

<400> 176

Met Val Ser Arg Leu Phe Leu Ala His Gly Glu Phe Cys Thr Asn His  
 1 5 10 15

Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Ala Cys Met Leu  
 20 25 30

Thr Val Glu Arg Gln Asn Pro Ile Pro Pro Thr Lys Pro Ile Thr Thr  
 35 40 45

Ser Cys Gln Gly Cys Ile Gln Glu Ala Glu Tyr Asn Ala Ala Asp Leu  
 50 55 60

Ile Ser Met Thr Ile Leu Arg Ser Leu Ala Val Leu Tyr Cys Tyr Tyr  
 65 70 75 80

Gln Phe Arg Lys Leu His Lys Leu Gly Ser Arg Tyr Ile Leu Gly Ile  
 85 90 95

Ala Glu Leu Phe Thr Val Phe Ser Ser Phe Ile Phe Thr Thr Thr Val  
 100 105 110

Leu Asn Leu Leu Arg Val Glu Val Ser Asp Leu Lys Asp Ala Leu Phe  
 115 120 125

Phe Phe Leu Leu Leu Ile Asp Leu Ser Lys Ala Gly Met Leu Ala Gln  
 130 135 140

Phe Ala Leu Thr Ser Gln Asn Glu Ile Glu Gly Lys Asn Asn Ile Ala  
 145 150 155 160

Lys Gly Leu Ala Glu Leu Gly Pro Thr Ile Thr Leu Asp Thr Val Val  
 165 170 175

Glu Thr Leu Val Ile Gly Val Gly Thr Leu Ser Gly Val Glu Arg Leu  
 180 185 190

Glu Met Leu Ser Trp Phe Ala Cys Leu Ser Val Leu Val Asn Tyr Val  
 195 200 205

Val Phe Met Ala Phe Tyr Pro Ala Cys Leu Ser Leu Ile Leu Glu Leu



210	215	220															
Ser	Arg	Ser	Thr	Asn	Phe	Tyr	Lys	Thr	Lys	Asp	Pro	Trp	Met	Ile	Phe		
225					230					235					240		
Ala	Phe	Lys	Glu	Glu	Glu	His	Lys	Ser	Asn	Pro	Val	Val	Gln	Arg	Val		
				245					250					255			
Lys	Leu	Ile	Met	Ser	Val	Gly	Leu	Met	Ile	Val	His	Val	His	Ser	Arg		
			260					265						270			
Trp	Pro	Phe	Lys	Asp	Ser	Glu	Val	Tyr	Asn	Ile	Glu	Pro	Leu	Val	Gln		
		275					280					285					
Gln	Ser	Phe	Asn	Asn	Thr	Glu	Glu	Ser	Asn	Ser	Leu	His	Gly	Tyr	Phe		
	290					295					300						
Glu	Arg	Trp	Leu	Ala	Leu	Gly	Ala	Asp	His	Ile	Val	Ile	Leu	Ile	Leu		
305					310					315					320		
Ile	Thr	Ala	Leu	Leu	Ile	Lys	Leu	Leu	Phe	Phe	Glu	Ile	Gln	Asp	Leu		
				325					330					335			
Thr	Glu	Ile	Arg	Asp	Gln	Glu	Thr	Gln	Val	Glu	Pro	Glu	Lys	Ser	Glu		
			340					345					350				
Lys	Ala	Glu	Asn	Thr	Glu	Lys	Glu	Glu	Leu	Lys	Val	Val	Gln	Glu	Val		
	355						360					365					
Arg	Glu	Asn	Lys	Arg	Met	Pro	Met	Phe	Ser	Leu	Ser	Glu	Asp	Asp	Ser		
	370					375					380						
Cys	Glu	Thr	Thr	Phe	Gln	Asp	Lys	Glu	Val	Gln	Thr	Gln	Thr	Pro	Tyr		
385					390					395					400		
Asn	Ser	Glu	Ala	His	Ser	Ser	Ser	Glu	Asp	Asp	Ile	Pro	Lys	Val	Cys		
				405					410					415			
Lys	Thr	Leu	Glu	Asp	Cys	Leu	Lys	Ile	Tyr	Asn	Asn	Val	Asp	Met	Gly		
			420					425					430				
Ala	Thr	Ala	Leu	Thr	Asp	Glu	Glu	Ile	Ile	Leu	Leu	Ile	Lys	Asn	Arg		
		435					440						445				
His	Ile	Ala	Gly	Tyr	Gln	Ile	Glu	Lys	Ala	Val	Asp	Asn	Pro	Glu	Arg		
	450					455					460						

Gly Val Gly Ile Arg Arg Lys Ile Leu Gly Arg Asp Leu Asp Ala Pro  
 465 470 475 480

Lys Val Leu Glu Gly Leu Pro Tyr Arg Asn Tyr Asp Tyr Ser Leu Val  
 485 490 495

Met Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val  
 500 505 510

Gly Tyr Ala Gly Pro Leu Val Leu Asp Gly Lys Glu Ile Tyr Val Pro  
 515 520 525

Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys  
 530 535 540

Arg Ala Leu Lys Glu Ala Gly Val Thr Ser Arg Ile Val Ala Asp Gly  
 545 550 555 560

Met Thr Arg Gly Pro Val Val Arg Phe Pro Ser Ile Ile Arg Ala Ser  
 565 570 575

Gln Ala Met Gln Trp Ile Gln Asp Asn Phe Asp Gly Ile Lys Glu Gln  
 580 585 590

Phe Asp Ser Ser Ser Arg Phe Ala Arg Leu Gln Arg Val Thr Met Lys  
 595 600 605

Ile Ala Gly Arg Leu Leu Phe Ile Arg Phe Val Ala Thr Thr Gly Asp  
 610 615 620

Ala Met Gly Met Asn Met Leu Ser Lys Gly Thr Glu Tyr Ser Leu Lys  
 625 630 635 640

Phe Val Gln Arg Ala Phe Glu Asp Met Glu Ile Leu Ser Leu Ser Gly  
 645 650 655

Asn Phe Cys Thr Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly  
 660 665 670

Arg Gly Lys Ser Val Val Cys Glu Ala Ile Val Pro Ala Lys Ile Val  
 675 680 685

Ala Asn Ile Leu Lys Thr Asn Val His Ala Leu Val Asp Val Asn Asn  
 690 695 700

Ser Lys Asn Met Val Gly Ser Ala Val Ala Gly Ser Ile Gly Gly Phe  
705 710 715 720

Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile Phe Leu Ala Thr Gly  
725 730 735

Gln Asp Pro Ala Gln Asn Val Gly Ser Ser Asn Cys Met Thr Leu Met  
740 745 750

Glu Pro Trp Gly Pro Thr Gly Glu Asp Leu Tyr Ile Ser Cys Thr Met  
755 760 765 .

Pro Ser Ile Glu Ile Gly Thr Ile Gly Gly Gly Thr Ile Leu Pro Pro  
770 775 780

Gln Gly Thr Cys Leu Glu Met Leu Gly Val Arg Gly Ser Asn Ile Ala  
785 790 795 800

Glu Pro Gly Ala Asn Ala Ser Gln Leu Ala Lys Ile Val Gly Ala Thr  
805 810 815

Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Leu Ala Ala Gly His  
820 825 830

Leu Val Arg Ser His Leu Arg His Asn Arg Ser Thr Thr Leu Leu Pro  
835 840 845

Asp Ala Phe Asp Lys Asn Lys Asn Ile Leu Val Pro Pro Cys Lys Asp  
850 855 860

Lys Val  
865

<210> 177  
<211> 353  
<212> PRT  
<213> Kitasatospora griseola

<400> 177

Met Thr Glu Ala His Ala Thr Ala Gly Val Pro Met Arg Trp Val Gly  
1 5 10 15

Pro Val Arg Ile Ser Gly Asn Val Ala Thr Ile Glu Thr Gln Val Pro  
20 25 30

Leu Ala Thr Tyr Glu Ser Pro Leu Trp Pro Ser Val Gly Arg Gly Ala

35					40					45					
Lys	Val	Ser	Arg	Leu	Thr	Glu	Lys	Gly	Ile	Val	Ala	Thr	Leu	Val	Asp
50						55					60				
Glu	Arg	Met	Thr	Arg	Ser	Val	Leu	Val	Glu	Ala	Thr	Asp	Ala	Leu	Thr
65					70					75					80
Ala	Leu	Ser	Ala	Ala	Arg	Thr	Ile	Glu	Ala	Arg	Ile	Asp	Glu	Leu	Arg
				85					90					95	
Glu	Leu	Val	Arg	Gly	Cys	Ser	Arg	Phe	Ala	Gln	Leu	Ile	Gly	Ile	Arg
			100					105					110		
His	Glu	Ile	Thr	Gly	Asn	Leu	Leu	Phe	Val	Arg	Phe	Glu	Phe	Ser	Thr
	115						120					125			
Gly	Asp	Ala	Ser	Gly	His	Asn	Met	Ala	Thr	Leu	Ala	Ser	Asp	Val	Leu
	130					135					140				
Leu	Gln	His	Leu	Leu	Glu	Thr	Val	Pro	Gly	Ile	Ser	Tyr	Gly	Ser	Ile
145					150					155					160
Ser	Gly	Asn	Tyr	Cys	Thr	Asp	Lys	Lys	Ala	Thr	Ala	Ile	Asn	Gly	Ile
				165					170					175	
Leu	Gly	Arg	Gly	Lys	Asn	Val	Val	Thr	Glu	Leu	Leu	Val	Pro	Arg	Asp
			180					185					190		
Val	Val	Ala	Asp	Val	Leu	Asn	Thr	Thr	Ala	Ala	Lys	Ile	Ala	Glu	Leu
		195					200					205			
Asn	Leu	Arg	Lys	Asn	Leu	Leu	Gly	Thr	Leu	Leu	Ala	Gly	Gly	Ile	Arg
	210					215					220				
Ser	Ala	Asn	Ala	His	Tyr	Ala	Asn	Met	Leu	Leu	Ala	Phe	Tyr	Leu	Ala
225					230					235					240
Thr	Gly	Gln	Asp	Ala	Ala	Asn	Ile	Val	Glu	Gly	Ser	Gln	Gly	Val	Val
				245					250					255	
Thr	Ala	Glu	Asp	Arg	Asp	Gly	Asp	Leu	Tyr	Leu	Ala	Cys	Thr	Leu	Pro
			260					265					270		
Asn	Leu	Ile	Val	Gly	Thr	Val	Gly	Asn	Gly	Lys	Gly	Leu	Gly	Phe	Val
		275					280					285			

Glu Thr Asn Leu Asn Arg Leu Gly Cys Arg Ala Asp Arg Glu Pro Gly  
290 295 300

Glu Asn Ala Arg Arg Leu Ala Val Ile Ala Ala Ala Thr Val Leu Cys  
305 310 315 320

Gly Glu Leu Ser Leu Leu Ala Ala Gln Thr Asn Pro Gly Glu Leu Met  
325 330 335

Arg Ala His Val Gln Leu Glu Arg Gly His Thr Thr Ala Lys Ala Gly  
340 345 350

Val

<210> 178  
<211> 434  
<212> PRT  
<213> Leishmania major

<400> 178

Met Arg Arg Ser Leu Leu Leu Ala Cys Ser Ala Ala Lys Gly Glu Ser  
1 5 10 15

Trp Ala Ser Met Ser Asp Thr Glu Ile Met Lys Gln Val Glu Asn Lys  
20 25 30

Lys Ile Ala Phe His Gly Leu Glu Gln Ala Leu Ala Pro Asp Tyr Asp  
35 40 45

Arg Ala Ile Ala Ile Arg Arg Glu Ile Val Lys Lys Lys Ile Cys Pro  
50 55 60

Ser Pro Ala Ala Thr His Pro Leu Glu Arg Val Pro Tyr Lys Asn Tyr  
65 70 75 80

Asp Trp Ser Ser Val Val Gly Gln Ser Cys Glu Asn Ile Leu Gly Tyr  
85 90 95

Val Pro Val Pro Val Gly Leu Ala Gly Pro Leu Leu Leu Asp Gly Lys  
100 105 110

Glu Val Ala Leu Pro Met Ala Thr Thr Glu Gly Ala Leu Val Ala Ser  
115 120 125

Ala His Arg Gly Ala Arg Ala Ile Asn Leu Ser Gly Gly Cys Arg Thr  
 130 135 140  
 Ala Val Leu Lys Glu Gly Met Thr Arg Ala Pro Val Val Glu Val Asn  
 145 150 155 160  
 Ser Phe Asp Glu Ala Ile Thr Val Ile Lys Phe Cys Glu Glu Arg Phe  
 165 170 175  
 Asp Val Leu Arg Glu Ala Phe Glu Ser Thr Thr Arg Phe Gly Lys Leu  
 180 185 190  
 Leu Ser Ile Lys Cys Ala Met Ala Gly Arg Gln Val His Leu Arg Phe  
 195 200 205  
 Ser Ala Phe Thr Gly Asp Ala Met Gly Met Asn Met Ile Thr Lys Gly  
 210 215 220  
 Cys Asp Lys Ala Leu Gln Val Leu Gln Gln His Ile Pro Ser Val Arg  
 225 230 235 240  
 Val Leu Thr Leu Ser Gly Asn Phe Cys Thr Asp Lys Lys Pro Ser Ala  
 245 250 255  
 Leu Asn Trp Val Glu Gly Arg Gly Lys Ser Val Val Ala Glu Ala Val  
 260 265 270  
 Ile Lys Arg Asp Val Val Glu Ser Val Leu Lys Cys Thr Val Asp Ser  
 275 280 285  
 Val Val Ser Leu Asn Val Thr Lys Asn Leu Arg Gly Ser Ala Leu Ala  
 290 295 300  
 Gly Ser Ile Gly Gly Phe Asn Ala His Ala Ala Asn Ile Val Ala Ala  
 305 310 315 320  
 Leu Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Val Val Glu Ser Ala  
 325 330 335  
 Thr Cys Met Thr Thr Val Asp Lys Ala Gly Glu Asp Leu Val Ile Ser  
 340 345 350  
 Leu Met Met Pro Ser Ile Glu Val Gly Ala Val Gly Gly Gly Thr Gly  
 355 360 365  
 Leu Ser Ser Gln Arg Ala Met Leu Glu Leu Met Gly Cys Ala Gly Ser

370                      375                      380  
 Asn Lys Glu Asp Pro Gly Ala His Ser Arg Gln Ile Ala Arg Val Val  
 385                      390                      395                      400  
 Ala Gly Ala Val Ile Cys Gly Glu Leu Ser Leu Leu Ser Gly Leu Ala  
                     405                      410                      415  
 Ala Gly His Leu Leu Ser Ala His Met Lys Leu Asn Arg Lys Pro Pro  
                     420                      425                      430

Thr Pro

<210> 179  
 <211> 106  
 <212> PRT  
 <213> *Gibberella fujikuroi*

<400> 179

Pro Met Ala Thr Thr Glu Gly Val Leu Val Ala Ser Ala Ser Arg Gly  
 1                      5                      10                      15

Cys Lys Ala Ile Asn Ser Gly Gly Gly Ala Ile Thr Val Leu Thr Ala  
                     20                      25                      30

Asp Gly Met Thr Arg Gly Pro Cys Val Ala Phe Glu Thr Leu Glu Arg  
                     35                      40                      45

Ala Gly Ala Ala Lys Leu Trp Leu Asp Ser Glu Ala Gly Gln Asp Met  
                     50                      55                      60

Met Lys Lys Ala Phe Asn Ser Thr Ser Ser Phe Ala Arg Leu Gln Ser  
 65                      70                      75                      80

Met Lys Thr Ala Leu Ala Gly Thr Asn Leu Tyr Ile Arg Phe Lys Thr  
                     85                      90                      95

Thr Thr Gly Asp Ala Met Gly Met Asn Met  
                     100                      105

<210> 180  
 <211> 247  
 <212> PRT  
 <213> *Anthonomus grandis*

<220>  
 <221> MISC\_FEATURE

<222> (1)..(247)  
<223> x equals unknown

<400> 180

Glu Ala Met Gly Met Asn Met Ile Ser Lys Gly Thr Glu Lys Ser Leu  
1 5 10 15

Ala Tyr Ile Lys Ser His Phe Glu Asp Met Glu Ile Leu Ser Leu Ser  
20 25 30

Gly Asn Val Cys Thr Asp Lys Lys Pro Ser Ala Ile Asn Trp Ile Glu  
35 40 45

Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Val Pro Ala Asn Ile  
50 55 60

Val His Ser Ile Leu Lys Thr Thr Thr His Ala Leu Val Asp Leu Asn  
65 70 75 80

Ile Ser Lys Asn Met Val Gly Ser Ala Val Ser Ala Ala Ile Gly Gly  
85 90 95

Phe Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Thr  
100 105 110

Gly Gln Asp Val Ala Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu  
115 120 125

Met Glu Pro Cys Gly Asp Lys Gly Glu Asp Leu Leu Ile Ser Cys Thr  
130 135 140

Met Pro Ser Val Glu Ile Gly Thr Val Gly Gly Gly Thr Val Leu Pro  
145 150 155 160

Ala Gln Gly Ala Cys Leu Glu Met Leu Gly Val Lys Gly Ala His Ser  
165 170 175

Glu Asn Pro Gly Asp Asn Ala Lys Gln Leu Ala Lys Ile Val Cys Gly  
180 185 190

Ala Val Leu Ala Gly Glu Leu Ser Leu Met Ala Ala Leu Val Thr Gly  
195 200 205

His Leu Val Lys Ser His Leu Arg Leu Asn Arg Ser Tyr Ser Glu Lys  
210 215 220



Asp Ser Pro Phe Lys Lys Ser Val Gly Gly Ser Ser Xaa Met Ser Asn  
 225 230 235 240

Ile Thr Gln Phe Gln Tyr Gly  
 245

<210> 181  
 <211> 846  
 <212> PRT  
 <213> Dendroctonus jeffreyi

<400> 181

Met Ala Ser Arg Leu Phe Arg Val His Gly Glu Phe Cys Thr Asn His  
 1 5 10 15

Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Ala Cys Met Leu  
 20 25 30

Thr Val Glu Gln Gln Pro Pro Leu Arg Pro Ile Lys Pro Thr Ile Lys  
 35 40 45

Ser Cys Leu Gly Cys Ile Gln Glu Ala Glu His Asn Ala Ala Asp Leu  
 50 55 60

Ile Ser Met Thr Ile Leu Arg Ser Leu Ala Val Leu Tyr Cys Tyr Tyr  
 65 70 75 80

Gln Phe Arg Lys Met His Lys Leu Gly Ser Lys Tyr Val Leu Gly Ile  
 85 90 95

Ala Gly Leu Phe Thr Val Phe Ser Ser Leu Val Phe Thr Thr Thr Val  
 100 105 110

Leu Asn Ile Leu Arg Ile Lys Val Ser Asp Leu Lys Asp Ala Leu Phe  
 115 120 125

Phe Phe Leu Leu Leu Ile Asp Leu Ser Lys Ala Ala Ile Leu Ala Gln  
 130 135 140

Phe Ala Leu Asn Gly Ala Asn Gln Ala Glu Arg Lys Thr Asn Ile Ala  
 145 150 155 160

Lys Gly Leu Ala Glu Leu Gly Pro Thr Ile Thr Leu Asp Thr Leu Val  
 165 170 175

Glu Thr Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Ala Arg Leu

180					185					190					
Glu	Met	Leu	Ser	Trp	Phe	Ala	Cys	Leu	Ser	Val	Leu	Val	Asn	Tyr	Ile
		195					200					205			
Val	Phe	Met	Thr	Phe	Tyr	Pro	Ala	Cys	Leu	Ser	Leu	Ile	Leu	Glu	Leu
	210					215					220				
Ser	Gln	Ser	Ser	Asn	Phe	Cys	Lys	Thr	Lys	Asp	Ser	Trp	Lys	Ile	Phe
225					230					235					240
Ala	Phe	Lys	Glu	Asp	Arg	Lys	Ser	Asn	Pro	Val	Leu	Gln	Arg	Val	Lys
				245					250					255	
Leu	Ile	Met	Ser	Val	Gly	Leu	Met	Val	Val	His	Val	Gln	Ser	Arg	Trp
			260					265						270	
Pro	Phe	Arg	Asp	Ser	Glu	Val	Tyr	Thr	Ile	Glu	Pro	Leu	Val	Gln	Gln
		275					280					285			
Ser	Phe	Asn	Lys	Thr	Asp	Asp	Ser	Ile	Ala	Thr	His	Val	Ser	Phe	Ile
	290					295					300				
Arg	Trp	Leu	Val	Leu	Gly	Ala	Asp	His	Ile	Val	Ile	Ile	Ile	Leu	Val
305					310					315					320
Ser	Ala	Leu	Leu	Ile	Lys	Leu	Ile	Phe	Phe	Glu	Ile	Lys	Asp	Asn	Leu
				325					330					335	
Val	Glu	Ile	Lys	Pro	Gly	Phe	Asp	Lys	Glu	Thr	Pro	Lys	Pro	Thr	Lys
			340					345					350		
Gln	Met	Pro	Met	Ile	Asn	Phe	Thr	Leu	Gly	Glu	Ser	Cys	Glu	Ser	Thr
		355					360					365			
Tyr	Glu	Asp	Lys	Glu	Val	Gln	Thr	Leu	Ala	Thr	Ser	Asn	Ser	Asp	Val
	370					375					380				
Asp	Ser	Ser	Ser	Asp	Asp	Gly	Val	Pro	Lys	Gln	Cys	Arg	Ser	Leu	Glu
385					390					395					400
Asp	Cys	Val	Lys	Ile	Phe	Lys	Asn	Ile	Asp	Leu	Gly	Ala	Thr	Ala	Leu
				405					410					415	
Thr	Asp	Asp	Glu	Ile	Ile	Leu	Leu	Ile	Lys	Asn	Lys	Asn	Ile	Ala	Ala
			420					425					430		

Tyr Gln Ile Glu Lys Glu Val Asp Asp Pro Glu Arg Gly Val Gly Ile  
 435 440 445

Arg Arg Lys Ile Leu Gly Arg Asp Leu Leu Glu Ser Pro Lys Leu Leu  
 450 455 460

Glu Asn Leu Pro Phe Arg Asn Tyr Asp Tyr Ser Leu Val Met Gly Ala  
 465 470 475 480

Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val Gly Tyr Ala  
 485 490 495

Gly Pro Leu Leu Leu Asp Gly Arg Glu Leu Tyr Ile Pro Met Ala Thr  
 500 505 510

Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Leu  
 515 520 525

Lys Val Ser Gly Val Thr Ser Ser Val Val Ala Asp Gly Met Thr Arg  
 530 535 540

Gly Pro Val Val Arg Phe Pro Ser Ile Val Arg Thr Ser Gln Ala Met  
 545 550 555 560

Gln Trp Ile Gln Asp Pro Asp Asn Phe Lys Lys Ile Lys Glu Gln Phe  
 565 570 575

Asp Ser Ser Ser Arg Phe Ala Arg Leu Gln Arg Leu Thr Leu Lys Ile  
 580 585 590

Ala Gly Arg Phe Leu Phe Ile Arg Phe Ile Ala Thr Thr Gly Asp Ala  
 595 600 605

Met Gly Met Asn Met Leu Ser Lys Gly Thr Glu Tyr Ser Leu Lys Leu  
 610 615 620

Val Gln Gln Val Phe Tyr Asp Met Glu Ile Leu Ser Leu Ser Gly Asn  
 625 630 635 640

Phe Cys Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg  
 645 650 655

Gly Lys Ser Val Val Cys Glu Ala Ile Val Pro Ala Lys Ile Ile Ser  
 660 665 670

Ser Ile Leu Lys Thr Asn Val His Ala Leu Val Asp Val Asn Asn Ile  
675 680 685

Gln Glu His Val Gly Ser Ala Val Ala Gly Ser Ile Gly Gly Phe Asn  
690 695 700

Ala His Ala Ala Asn Ile Val Thr Ala Ile Phe Leu Ala Thr Gly Gln  
705 710 715 720

Asp Pro Ala Gln Asn Val Ser Ser Ser Asn Cys Met Thr Leu Met Glu  
725 730 735

Pro Trp Gly Pro Asp Gly Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro  
740 745 750

Ser Ile Glu Ile Gly Thr Ile Gly Gly Gly Thr Ile Leu Pro Ala Gln  
755 760 765

Ser Ala Cys Leu Asp Ile Leu Gly Val Lys Gly Ser Asn Arg Glu Asn  
770 775 780

Pro Gly Ala Asn Ala Cys Gln Leu Ala Lys Ile Val Cys Gly Thr Val  
785 790 795 800

Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Leu Thr Ala Gly His Leu  
805 810 815

Val Lys Ser His Leu Arg His Asn Arg Ser Thr Thr Leu Leu Pro Asp  
820 825 830

Ala Phe Asp Arg Lys Lys Ile Ser Phe Thr Gln Leu Pro Arg  
835 840 845

<210> 182

<211> 353

<212> PRT

<213> Streptomyces sp

<400> 182

Met Thr Asp Thr His Ala Ile Ala Met Val Pro Met Lys Trp Val Gly  
1 5 10 15

Pro Leu Arg Ile Ser Gly Asn Val Ala Thr Thr Glu Thr His Val Pro  
20 25 30

Leu Ala Thr Tyr Glu Thr Pro Leu Trp Pro Ser Val Gly Arg Gly Ala

35	40	45
Lys Val Ser Met Leu Ser Glu Arg Gly Ile Ala Ala Thr Leu Val Asp 50 55 60		
Glu Arg Met Thr Arg Ser Val Leu Val Glu Ala Thr Asp Ala Gln Thr 65 70 75 80		
Ala Tyr Thr Ala Ala Arg Ala Ile Glu Ala Arg Ile Glu Glu Leu Arg 85 90 95		
Ala Val Val Arg Thr Cys Ser Arg Phe Ala Glu Leu Leu Gln Val Arg 100 105 110		
His Glu Ile Ala Gly Asn Leu Leu Phe Val Arg Phe Glu Phe Ser Thr 115 120 125		
Arg Arg Pro Ser Gly His Asn Met Ala Thr Leu Ala Ser Asp Ala Leu 130 135 140		
Leu Ala His Leu Leu Gln Thr Ile Pro Gly Ile Ser Tyr Gly Ser Ile 145 150 155 160		
Ser Gly Asn Tyr Cys Thr Asp Lys Lys Ala Thr Ala Ile Asn Gly Ile 165 170 175		
Leu Gly Arg Gly Lys Asn Val Val Thr Glu Leu Val Val Glu Arg Glu 180 185 190		
Val Val Glu Arg Val Leu His Thr Thr Ala Ala Lys Ile Val Glu Leu 195 200 205		
Asn Ile Arg Lys Asn Leu Leu Gly Thr Leu Leu Ala Gly Gly Ile Arg 210 215 220		
Ser Ala Asn Ala His Tyr Ala Asn Met Leu Leu Gly Phe Tyr Leu Ala 225 230 235 240		
Thr Gly Gln Asp Ala Ala Asn Ile Val Glu Gly Ser Gln Gly Val Thr 245 250 255		
Leu Ala Glu Asp Arg Asp Gly Asp Leu Tyr Phe Ser Cys Asn Leu Pro 260 265 270		
Asn Leu Ile Val Gly Thr Val Gly Asn Gly Lys Gly Leu Glu Phe Val 275 280 285		

Glu Thr Asn Leu Asn Arg Leu Gly Cys Arg Glu Asp Arg Ala Pro Gly  
290 295 300

Glu Asn Ala Arg Arg Leu Ala Val Ile Ala Ala Ala Thr Val Leu Cys  
305 310 315 320

Gly Glu Leu Ser Leu Leu Ala Ala Gln Thr Asn Pro Gly Glu Leu Met  
325 330 335

Arg Ala His Val Glu Leu Glu Arg Asp Asn Thr Thr Ala Glu Val Gly  
340 345 350

Val

<210> 183  
<211> 353  
<212> PRT  
<213> Kitasatospora griseola

<400> 183

Met Thr Glu Ala His Ala Thr Ala Gly Val Pro Met Arg Trp Val Gly  
1 5 10 15

Pro Val Arg Ile Ser Gly Asn Val Ala Thr Ile Glu Thr Gln Val Pro  
20 25 30

Leu Ala Thr Tyr Glu Ser Pro Leu Trp Pro Ser Val Gly Arg Gly Ala  
35 40 45

Lys Val Ser Arg Leu Thr Glu Lys Gly Ile Val Ala Thr Leu Val Asp  
50 55 60

Glu Arg Met Thr Arg Ser Val Leu Val Glu Ala Thr Asp Ala Leu Thr  
65 70 75 80

Ala Leu Ser Ala Ala Arg Thr Ile Glu Ala Arg Ile Asp Glu Leu Arg  
85 90 95

Glu Leu Val Arg Gly Cys Ser Arg Phe Ala Gln Leu Ile Gly Ile Arg  
100 105 110

His Glu Ile Thr Gly Asn Leu Leu Phe Val Arg Phe Glu Phe Ser Thr  
115 120 125

Gly Asp Ala Ser Gly His Asn Met Ala Thr Leu Ala Ser Asp Val Leu  
130 135 140

Leu Gln His Leu Leu Glu Thr Val Pro Gly Ile Ser Tyr Gly Ser Ile  
145 150 155 160

Ser Gly Asn Tyr Cys Thr Asp Lys Lys Ala Thr Ala Ile Asn Gly Ile  
165 170 175

Leu Gly Arg Gly Lys Asn Val Val Thr Glu Leu Leu Val Pro Arg Asp  
180 185 190

Val Val Ala Asp Val Leu Asn Thr Thr Ala Ala Lys Ile Ala Glu Leu  
195 200 205

Asn Leu Arg Lys Asn Leu Leu Gly Thr Leu Leu Ala Gly Gly Ile Arg  
210 215 220

Ser Ala Asn Ala His Tyr Ala Asn Met Leu Leu Ala Phe Tyr Leu Ala  
225 230 235 240

Thr Gly Gln Asp Ala Ala Asn Ile Val Glu Gly Ser Gln Gly Val Val  
245 250 255

Thr Ala Glu Asp Arg Asp Gly Asp Leu Tyr Leu Ala Cys Thr Leu Pro  
260 265 270

Asn Leu Ile Val Gly Thr Val Gly Asn Gly Lys Gly Leu Gly Phe Val  
275 280 285

Glu Thr Asn Leu Asn Arg Leu Gly Cys Arg Ala Asp Arg Glu Pro Gly  
290 295 300

Glu Asn Ala Arg Arg Leu Ala Val Ile Ala Ala Ala Thr Val Leu Cys  
305 310 315 320

Gly Glu Leu Ser Leu Leu Ala Ala Gln Thr Asn Pro Gly Glu Leu Met  
325 330 335

Arg Ala His Val Gln Leu Glu Arg Gly His Thr Thr Ala Lys Ala Gly  
340 345 350

Val

<210> 184

<211> 567  
 <212> PRT  
 <213> Artemisia annua

<400> 184

Met Asp Leu Arg Arg Lys Leu Pro Pro Lys Pro Pro Ser Ser Thr Thr  
 1 5 10 15

Thr Lys Gln Pro Ser His Arg Ser His Ser Pro Thr Pro Ile Pro Lys  
 20 25 30

Ala Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Thr Phe Phe  
 35 40 45

Phe Thr Leu Phe Phe Ser Val Ala Tyr Tyr Leu Leu His Arg Trp Arg  
 50 55 60

Asp Lys Ile Arg Ser Gly Thr Pro Leu His Val Val Thr Leu Thr Glu  
 65 70 75 80

Leu Ser Ala Ile Val Leu Leu Ile Ala Ser Phe Ile Tyr Leu Leu Gly  
 85 90 95

Phe Phe Gly Ile Asp Phe Val Gln Ser Phe Thr Ser Arg Glu Asn Glu  
 100 105 110

Gln Leu Asn Asn Asp Asp His Asn Val Val Ser Thr Asn Asn Val Leu  
 115 120 125

Ser Asp Arg Arg Leu Val Tyr Asp Tyr Gly Phe Asp Val Thr Gly Asp  
 130 135 140

Asn Asp Asn Asp Asn Asp Asp Asp Val Ile Val Lys Ser Val Val Ser  
 145 150 155 160

Gly Glu Val Asn Ser Tyr Ser Leu Glu Ala Ser Leu Gly Asp Cys Tyr  
 165 170 175

Arg Ala Ala Lys Ile Arg Lys Arg Ala Val Glu Arg Ile Val Gly Arg  
 180 185 190

Glu Val Leu Gly Leu Gly Phe Glu Gly Phe Asp Tyr Glu Ser Ile Leu  
 195 200 205

Gly Gln Cys Cys Glu Met Pro Ile Gly Tyr Val Gln Val Pro Val Gly  
 210 215 220



Val Ala Gly Pro Leu Leu Leu Asn Gly Gly Glu Phe Met Val Pro Met  
 225 230 235 240

Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys  
 245 250 255

Ala Ile Cys Leu Ser Gly Gly Ala Thr Ala Ile Leu Leu Lys Asp Gly  
 260 265 270

Met Thr Arg Ala Pro Val Val Arg Phe Ala Thr Ala Glu Arg Ala Ser  
 275 280 285

Gln Leu Lys Phe Tyr Leu Glu Asp Gly Val Asn Phe Asp Thr Leu Ser  
 290 295 300

Val Val Phe Asn Lys Ser Ser Arg Phe Ala Arg Leu Gln Asn Ile Gln  
 305 310 315 320

Cys Ser Ile Ala Gly Lys Asn Leu Tyr Ile Arg Phe Thr Cys Ser Thr  
 325 330 335

Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val  
 340 345 350

Leu Asp Phe Leu Gln Asn Asp Phe Pro Asp Met Asp Val Ile Gly Ile  
 355 360 365

Ser Trp Lys Phe Cys Ser Asp Lys Lys Pro Thr Ala Val Asn Trp Ile  
 370 375 380

Glu Gly Arg Gly Lys Ser Val Val Phe Gln Ala Val Ile Thr Lys Lys  
 385 390 395 400

Val Val Arg Lys Ser Ala Leu Asn Pro Gln Thr Cys Thr Cys Arg Thr  
 405 410 415

Leu Thr Cys Leu Arg Pro Leu Leu Val Leu Leu Leu Leu Val Leu Leu  
 420 425 430

Val Asp Leu Met His Met Leu His Ile Val Ser Ala Val Phe Ile Ala  
 435 440 445

Thr Gly Gln Asp Pro Ala Gln Asn Ile Glu Ser Ser His Cys Ile Thr  
 450 455 460

Met Met Glu Ala Val Asn Asn Gly Lys Asp Leu His Val Asn Val Thr  
 465 470 475 480

Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala  
 485 490 495

Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala Cys Ile  
 500 505 510

Glu Ser Pro Gly Ser Asn Ala Gln Leu Leu Ala Arg Ile Val Ala Gly  
 515 520 525

Ser Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Ile Ser Ala Gly  
 530 535 540

Gln Leu Val Lys Ser His Met Lys Tyr Asn Arg Ser Ser Arg Asp Met  
 545 550 555 560

Ser Ala Ile Ala Ser Lys Val  
 565

<210> 185

<211> 560

<212> PRT

<213> Oryza sativa

<400> 185

Met Glu Val Arg Arg Arg Ala Pro Leu Pro Pro Pro Gly Arg Val  
 1 5 10 15

Gln Ala Gly Asp Ala Leu Pro Leu Pro Ile Arg His Thr Asn Leu Ile  
 20 25 30

Phe Ser Ala Leu Phe Ala Ala Ser Leu Ala Tyr Leu Met Arg Arg Trp  
 35 40 45

Arg Glu Lys Ile Arg Ser Ser Thr Pro Leu His Val Val Gly Leu Ala  
 50 55 60

Glu Met Leu Ala Ile Phe Gly Leu Val Ala Ser Leu Ile Tyr Leu Leu  
 65 70 75 80

Ser Phe Phe Gly Ile Ala Phe Val Gln Ser Ile Val Ser Ser Ser Asp  
 85 90 95

Asp Glu Glu Glu Asp Phe Leu Val Gly Pro Ala Arg Gly Ser Ser Ala  
 100 105 110

Ala Ala Ala Val Ala Pro Arg Ala Pro Ser Ser Pro Ala Gln Cys Ser  
 115 120 125

Leu Leu Gly Ser Pro His Asp Asp Ala Ala Arg Glu Arg Met Pro Glu  
 130 135 140

Glu Asp Glu Glu Ile Val Ser Ser Val Val Ala Gly Lys Val Pro Ser  
 145 150 155 160

Tyr Val Leu Glu Thr Lys Leu Gly Asp Cys Arg Arg Ala Ala Gly Ile  
 165 170 175

Arg Arg Glu Ala Val Arg Arg Ile Thr Gly Arg Gln Ile Glu Gly Leu  
 180 185 190

Pro Leu Asp Gly Phe Asp Tyr Ala Ser Ile Leu Gly Gln Cys Cys Glu  
 195 200 205

Leu Pro Val Gly Tyr Val Gln Leu Pro Val Gly Ile Ala Gly Pro Leu  
 210 215 220

Leu Leu Asp Gly Gln Arg Phe Tyr Val Pro Met Ala Thr Thr Glu Gly  
 225 230 235 240

Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala Ile Ala Glu Ser  
 245 250 255

Gly Gly Ala Val Ser Val Val Leu Arg Asp Gly Met Thr Arg Ala Pro  
 260 265 270

Val Ala Arg Leu Pro Thr Ala Arg Arg Ala Ala Glu Leu Lys Ala Phe  
 275 280 285

Leu Glu Asp Ser Val Asn Phe Asn Thr Leu Ser Met Val Phe Asn Arg  
 290 295 300

Ser Ser Arg Phe Ala Arg Leu Gln Gly Val Gln Cys Ala Met Ala Gly  
 305 310 315 320

Arg Asn Leu Tyr Met Arg Phe Ser Cys Cys Thr Gly Asp Ala Met Gly  
 325 330 335

Met Asn Met Val Ser Lys Gly Glu Gln Asn Val Leu Asp Tyr Leu Gln  
 340 345 350

Asp Asp Phe Pro Asp Met Asp Val Ile Ser Ile Ser Gly Asn Phe Cys  
355 360 365

Ser Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys  
370 375 380

Ser Val Val Cys Glu Ala Val Ile Lys Glu Asp Val Val Lys Lys Val  
385 390 395 400

Leu Lys Thr Asn Val Gln Ser Leu Val Glu Leu Asn Val Ile Lys Asn  
405 410 415

Leu Ala Gly Ser Ala Val Ala Gly Ala Leu Gly Gly Phe Asn Ala His  
420 425 430

Ala Ser Asn Ile Val Thr Ala Ile Phe Ile Ala Thr Gly Gln Asp Pro  
435 440 445

Ala Gln Asn Val Glu Ser Ser His Cys Ile Thr Met Leu Glu Ala Val  
450 455 460

Asn Asp Gly Arg Asp Leu His Ile Ser Val Thr Met Pro Ser Ile Glu  
465 470 475 480

Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ala Ala Cys  
485 490 495

Leu Asp Leu Leu Gly Val Lys Gly Ala Asn Arg Glu Ser Pro Gly Ser  
500 505 510

Asn Ala Arg Leu Leu Ala Thr Val Val Ala Gly Gly Val Leu Ala Gly  
515 520 525

Glu Leu Ser Leu Leu Ser Ala Leu Arg Ala Gly Gln Leu Val Lys Ser  
530 535 540

His Met Lys Tyr Asn Arg Ser Ser Lys Asp Met Ser Lys Val Ile Ser  
545 550 555 560

<210> 186

<211> 587

<212> PRT

<213> Cucumis melo

<400> 186

Met Asp Arg Arg Arg Ser Leu Arg Pro Pro Arg Pro Asn Ala Val Gln

1	5	10	15
Asp Ala Asp	Ala Thr Cys Thr Phe Arg Arg Asp Glu Gln Asp Ala Ser	20	25 30
Ala Ala Asp	His Leu Lys Arg Ala Ser Pro Lys Ala Ser Asp Ala Leu	35	40 45
Pro Leu Pro	Leu Tyr Leu Thr Asn Thr Ile Phe Phe Thr Leu Phe Phe	50	55 60
Ser Val Ala	Tyr Tyr Leu Leu His Arg Trp Arg Asp Lys Ile Arg Asn	65	70 75 80
Ser Thr Pro	Leu His Val Val Thr Leu Ser Glu Ile Ala Ala Ile Val	85	90 95
Ser Leu Met	Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe Gly Ile Asp	100	105 110
Phe Val Gln	Ser Phe Ile Ala Arg Ser Ser Pro Asp Ala Trp Asp Leu	115	120 125
Glu Asp Glu	Ile Asp Arg Thr Leu Leu Ile Asp Asn Asn Arg Tyr Ala	130	135 140
Ala Pro Arg	Ser Ala Ser Ala Val Ala Leu Pro Ser Lys Val Val Asp	145	150 155 160
Ala Glu Ala	Leu Asn Thr Ile Pro Leu Pro Glu Glu Asp Glu Glu Val	165	170 175
Val Lys Met	Val Val Asp Gly Ser Val Pro Ser Tyr Ser Leu Glu Ser	180	185 190
Lys Leu Gly	Asp Pro Lys Arg Ala Ala Ser Ile Arg Arg Glu Ala Leu	195	200 205
Gln Arg Thr	Thr Gly Arg Ser Ile His Gly Leu Pro Phe Glu Gly Phe	210	215 220
Asp Tyr Glu	Ser Ile Leu Gly Gln Cys Cys Glu Met Pro Val Gly Tyr	225	230 235 240
Val Gln Ile	Pro Val Gly Ile Ala Gly Pro Leu Leu Leu Asp Gly Phe	245	250 255

Glu Tyr Thr Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser  
260 265 270

Thr Asn Arg Gly Cys Lys Ala Ile Tyr Ala Ser Gly Gly Ala Thr Ser  
275 280 285

Met Leu Leu Lys Asp Gly Met Thr Arg Ala Pro Val Val Arg Phe Gly  
290 295 300

Ser Ala Lys Arg Ala Ser Glu Leu Lys Phe Phe Leu Glu Asp Pro Ser  
305 310 315 320

Asn Phe Asp Thr Leu Ala Val Val Phe Asn Arg Ser Ser Arg Phe Ala  
325 330 335

Arg Leu Gln Ser Ile Arg Cys Ser Ile Ala Gly Lys Asn Leu Tyr Val  
340 345 350

Arg Phe Cys Cys Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser  
355 360 365

Lys Gly Val Gln Asn Val Leu Glu Phe Leu Gln His Asp Phe Ser Asp  
370 375 380

Met Glu Val Ile Gly Ile Ser Gly Asn Phe Cys Ala Asp Lys Lys Pro  
385 390 395 400

Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu  
405 410 415

Ala Val Ile Lys Asp Glu Val Val Arg Lys Val Leu Lys Thr Ser Val  
420 425 430

Ala Ser Leu Val Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser Ala  
435 440 445

Met Ala Gly Ala Leu Gly Gly Phe Asn Ala His Ser Ser Asn Ile Val  
450 455 460

Ser Ala Ile Phe Leu Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu  
465 470 475 480

Ser Ser His Cys Ile Thr Met Met Glu Pro Val Asn Asn Gly Arg Asp  
485 490 495

Leu His Ile Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly  
500 505 510

Gly Gly Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly  
515 520 525

Val Lys Gly Ala Ser Lys Glu Ser Pro Gly Ala Asn Ser Arg Leu Leu  
530 535 540

Ala Thr Ile Val Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu Met  
545 550 555 560

Ser Ala Ile Ala Ala Gly Gln Leu Val Arg Ser His Met Lys Tyr Asn  
565 570 575

Arg Ser Ser Arg Asp Val Ser Lys Leu Glu Ser  
580 585

<210> 187  
<211> 121  
<212> PRT  
<213> Glycine max

<400> 187

Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Ile Lys Glu Glu  
1 5 10 15

Val Val Gln Lys Val Leu Lys Thr Asn Val Ser Ala Leu Val Glu Leu  
20 25 30

Asn Met Leu Lys Asn Leu Ala Gly Ser Ala Val Ala Gly Ala Leu Gly  
35 40 45

Gly Phe Asn Ala His Ala Ser Asn Ile Val Ser Ala Ile Phe Ile Ala  
50 55 60

Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser His Cys Ile Thr  
65 70 75 80

Met Met Glu Ala Ile Asn Asp Gly Arg Asp Leu His Ile Ser Val Thr  
85 90 95

Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala  
100 105 110

Ser Gln Ser Ala Cys Leu Asn Leu Leu

115

120

&lt;210&gt; 188

&lt;211&gt; 236

&lt;212&gt; PRT

&lt;213&gt; Schistosoma mansoni

&lt;400&gt; 188

Met Leu Lys Ile Leu Asn Thr Val Leu Leu Phe Phe Asp Cys Phe Ser  
 1 5 10 15

Thr Gly Thr Phe Phe Val Leu Leu Ile Tyr Leu Phe Thr Arg Leu Arg  
 20 25 30

Thr His Leu Leu His Phe Ser Ser Ser Asn Cys His Leu Asp Val Ile  
 35 40 45

Ile Tyr Gln Ser Arg Ala Val Ile Ile Phe Leu Val Val Phe Val Tyr  
 50 55 60

Phe Ile Gly Val Leu Thr Cys Lys Ile Asn Asp Lys Ile Leu Val His  
 65 70 75 80

Thr Met Leu Arg Asn Lys Arg Gln Leu Asn Thr Leu Phe Tyr Thr Leu  
 85 90 95

Ile Leu Phe Thr Phe Ala Leu Cys Ser Leu Ser Ser Val Leu Phe Val  
 100 105 110

Pro Tyr Thr Ser Phe Ala Ile Phe Leu Leu Ser Thr Ser Val Phe Leu  
 115 120 125

Leu Phe Ser Asp Leu Ser Val Phe Phe Ile Val Leu Glu Tyr Tyr Leu  
 130 135 140

Leu Glu Ile Glu Leu Val Asn Tyr Glu His Ala Lys Arg His Cys Leu  
 145 150 155 160

Leu Ser His Leu Phe Ser Asn Gln Leu Phe Val Asp His Met Leu Gly  
 165 170 175

Met Phe Leu Lys Thr Ser Leu Phe Ser Ile Ser Thr Thr Ser Lys Tyr  
 180 185 190

Ala Tyr Leu Glu Ser Ile Phe Lys Cys Thr Leu Met Glu Gln Ile Ile  
 195 200 205



Tyr Ile Met Ile Val Phe Val Phe Leu Pro Ser Phe Met Arg Ile Phe  
 210 215 220

Ala Ser Tyr Ala Lys Arg Met Tyr Gly Glu Gln Lys  
 225 230 235

<210> 189  
 <211> 18  
 <212> PRT  
 <213> Solanum tuberosum

<400> 189

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Pro Ser Glu His  
 1 5 10 15

Ile Ser

<210> 190  
 <211> 59  
 <212> PRT  
 <213> Solanum tuberosum

<400> 190

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
 1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
 20 25 30

Ser Tyr Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
 35 40 45

Thr Met Phe Ser Leu Leu Cys Ile Phe Phe Ser  
 50 55

<210> 191  
 <211> 82  
 <212> PRT  
 <213> Solanum tuberosum

<400> 191

Met Asp Val Cys Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
 1 5 10 15

Ala Phe Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
 20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Leu His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 192  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 192

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Leu His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 193  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 193

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Arg Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Phe His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 194  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 194

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Leu His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 195  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 195

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala



Gly Leu Ser Thr Leu Val Ser Ser Phe Phe Ala Phe Leu Phe Ala Leu  
 145 150 155 160

Tyr Ile Thr Thr Arg Val Leu Asp Leu Ser Ile Pro Phe Leu Ser Leu  
 165 170 175

Ser Glu Gly Ile Pro Phe Phe Val Ala Val Val Gly Phe Asn Asn Lys  
 180 185 190

Ile Leu Leu Ala Glu Lys Val Leu Gln Asn Gln Leu Asn Ala Gln Ser  
 195 200 205

Ser Lys Asn Asp Ala Pro Thr Val Leu Tyr Gln Ala Leu Arg Glu Gln  
 210 215 220

Gly Pro Leu Leu Leu Arg Asp His Leu Phe Met Ile Thr Ala Phe Leu  
 225 230 235 240

Gly Cys Ser Phe Tyr Ala Ser Tyr Leu Asp Gly Leu Lys Asn Phe Cys  
 245 250 255

Ile Leu Ala Ala Leu Ile Leu Ala Phe Asp Ile Leu Thr Thr Ser Thr  
 260 265 270

Phe Leu Ser Ala Ile Leu Ser Leu Lys Leu Glu Ile Asn Gln Ile His  
 275 280 285

Arg Ser Thr Leu Leu Arg Glu Gln Leu Glu Asp Asp Gly Leu Thr Glu  
 290 295 300

Thr Thr Val Asp Asp Val Leu Lys Ser Asn Ser Leu Ala Gly Thr Lys  
 305 310 315 320

Thr Phe Thr Asp Ala Pro Ser Thr Leu Val Thr Val Ala Lys Val Ala  
 325 330 335

Gly Val Ser Val Phe Phe Gly Leu His Phe Tyr Gly Phe Gly Ser Ala  
 340 345 350

Trp Leu Ser Asp Leu Ser Ala Gly Asn Glu Thr Asn Asp Thr Phe Thr  
 355 360 365

Leu Tyr Asp Ala Val Ala Asp Gln Ile Pro Ile Gly Ser Asn Gly Thr  
 370 375 380

Leu Val Thr Leu Phe Pro Thr Arg Phe Phe Leu Pro Glu Lys Leu Ser  
 385 390 395 400

Thr Gln Ile Glu Ala Val Val Leu Ser Phe Ile Gly Leu Ile Ser Thr  
 405 410 415

Ala Ala Arg Asp Lys Tyr Ile Ser Lys Phe Ile Leu Phe Ala Phe Ala  
 420 425 430

Val Ser Ala Ser Ile Asn Val Tyr Leu Leu Asn Val Ala Arg Ile His  
 435 440 445

Thr Thr Arg Leu Glu Asp Ala Ile Glu Leu Lys Lys Pro Lys Lys Lys  
 450 455 460

Ala Ser Lys Thr Ala Val Ser Val Pro Lys Ala Val Val Val Lys Asp  
 465 470 475 480

Ser Glu Thr Thr Lys Ser Ser Glu Ile Leu His Ser Ser Ser Glu Ser  
 485 490 495

Glu Ser Glu Gln Ser Ser Arg Pro Leu Glu Gln Val Ile Glu Leu Tyr  
 500 505 510

Lys Asp Gly Lys Val Lys Thr Leu Val Asp Asp Glu Val Val Ser Leu  
 515 520 525

Val Thr Ala Gly Lys Leu Pro Leu Tyr Ala Leu Glu Lys Gln Leu Gly  
 530 535 540

Asp Asn Leu Arg Ala Val Ala Ile Arg Arg Lys Ala Ile Ser Asp Leu  
 545 550 555 560

Ala Asp Ala Pro Val Leu Arg Ser Asn Lys Leu Pro Tyr Leu His Tyr  
 565 570 575

Asp Tyr Asp Arg Val Phe Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr  
 580 585 590

Met Pro Leu Pro Val Gly Val Ala Gly Pro Leu Ile Ile Asp Gly Lys  
 595 600 605

Pro Tyr His Ile Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser  
 610 615 620

Ala Met Arg Gly Cys Lys Ala Ile Asn Leu Gly Gly Gly Val Thr Thr

625		630		635		640									
Val	Leu	Thr	Lys	Asp	Gly	Met	Thr	Arg	Gly	Pro	Cys	Val	Lys	Phe	Pro
				645					650					655	
Ser	Leu	Lys	Arg	Ala	Gly	Gln	Cys	Lys	Leu	Trp	Leu	Asp	Ser	Asp	Glu
			660					665					670		
Gly	Gln	Glu	Glu	Met	Lys	Lys	Ala	Phe	Asn	Ser	Thr	Ser	Arg	Phe	Ala
		675					680					685			
Arg	Leu	Gln	His	Leu	Gln	Thr	Ala	Leu	Ala	Gly	Asp	Leu	Leu	Phe	Ile
	690					695					700				
Arg	Phe	Arg	Thr	Val	Thr	Gly	Asp	Ala	Met	Gly	Met	Asn	Met	Ile	Ser
705					710					715					720
Lys	Gly	Val	Glu	Tyr	Ala	Leu	Lys	Gln	Met	Thr	Glu	Val	Phe	Gly	Trp
				725					730					735	
Asp	Asp	Met	Met	Val	Val	Ser	Val	Ser	Gly	Asn	Tyr	Cys	Thr	Asp	Lys
			740					745					750		
Lys	Pro	Ala	Ala	Val	Asn	Trp	Ile	Asn	Gly	Arg	Gly	Lys	Ser	Val	Val
		755					760					765			
Ala	Glu	Ala	Ser	Ile	Pro	Lys	Asp	Ala	Val	Val	Lys	Val	Leu	Lys	Ser
	770					775					780				
Ser	Val	Lys	Ala	Val	Val	Asp	Val	Asn	Val	Asn	Lys	Asn	Leu	Ile	Gly
785					790					795					800
Ser	Ala	Met	Ala	Gly	Ser	Val	Gly	Gly	Phe	Asn	Ala	Gln	Ala	Ala	Asn
				805					810					815	
Met	Val	Thr	Ala	Val	Tyr	Leu	Ala	Leu	Gly	Gln	Asp	Pro	Ala	Gln	Asn
			820					825					830		
Val	Glu	Ser	Ser	Asn	Cys	Ile	Thr	Leu	Met	Thr	Glu	Thr	Glu	Asp	Gly
		835					840					845			
Asp	Leu	Lys	Val	Ser	Val	Ser	Met	Pro	Ser	Ile	Glu	Val	Gly	Thr	Ile
	850					855					860				
Gly	Gly	Gly	Thr	Ile	Leu	Asp	Pro	Gln	Gly	Ser	Met	Leu	Glu	Leu	Leu
865					870					875					880

Gly Val Arg Gly Pro Ala Asp Val Pro Gly Glu Asn Ala Arg Gln Leu  
885 890 895

Ala Lys Ile Val Ala Ser Ile Val Leu Ser Gly Glu Leu Ser Leu Val  
900 905 910

Ser Ala Leu Ala Ala Gly His Leu Val Gln Ser His Met Gln His Asn  
915 920 925

Arg Ala Ala Ala Lys Lys  
930

<210> 197  
<211> 628  
<212> PRT  
<213> Gossypium hirsutum

<400> 197

Met Glu Ala Ser Arg Arg Ser Ala Val Lys Pro Val Ile Val Leu Lys  
1 5 10 15

Pro Ser Lys Arg Phe Pro Leu Val Glu Asp Thr Pro Gly Lys Ala Ser  
20 25 30

Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr  
35 40 45

Leu Phe Phe Thr Val Val Tyr Phe Leu Leu Ser Arg Trp Arg Glu Lys  
50 55 60

Ile Arg Ala Ser Ile Pro Leu His Ala Val Thr Phe Pro Glu Ile Val  
65 70 75 80

Ala Ile Phe Ala Phe Val Ala Ser Leu Ile Tyr Leu Leu Gly Phe Phe  
85 90 95

Gly Ile Asp Phe Val Gln Ser Leu Ile Ile Arg Pro Ser Gly Asp Val  
100 105 110

Trp Ser Gly Glu Asp Tyr Glu Glu Glu Asn Glu Val Leu Leu His Glu  
115 120 125

Glu Asp Ala Arg Thr Val Pro Cys Gly Gln Ala Leu Asp Cys Ser Val  
130 135 140



Pro Ser Leu Pro His Met Ala Arg Asn Val Thr Ala Gln Arg Leu Phe  
 145 150 155 160  
 Asp Glu Lys Pro Val Arg Val Ala Thr Glu Glu Asp Ala Arg Lys Val  
 165 170 175  
 Ser Cys Gly Gln Ala Val Asp Cys Ser Leu His Ser Leu Pro Pro Arg  
 180 185 190  
 Pro Pro Ile Val Thr Ser Gln Lys Leu Phe His Glu Lys Thr Val Ile  
 195 200 205  
 Val Thr Thr Glu Glu Asp Glu Glu Ile Ile Lys Ser Val Val Ala Gly  
 210 215 220  
 Thr Leu Pro Ser Tyr Ser Leu Glu Ser Lys Leu Gly Asp Cys Lys Arg  
 225 230 235 240  
 Ala Ala Ala Ile Arg Arg Glu Ala Leu Gln Arg Leu Thr Gly Arg Ser  
 245 250 255  
 Leu Ser Gly Leu Pro Leu Asp Gly Phe Asp Tyr Glu Ser Ile Leu Gly  
 260 265 270  
 Gln Cys Cys Glu Met Pro Val Gly Tyr Val Gln Ile Pro Val Gly Ile  
 275 280 285  
 Ala Gly Pro Leu Leu Leu Asn Gly Arg Glu Tyr Ser Val Pro Met Ala  
 290 295 300  
 Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala  
 305 310 315 320  
 Ile His Leu Ser Gly Gly Ala Thr Ser Ile Leu Leu Lys Asp Gly Met  
 325 330 335  
 Thr Arg Ala Pro Val Val Arg Phe Ser Thr Ala Lys Arg Ala Ala Glu  
 340 345 350  
 Leu Lys Phe Tyr Leu Glu Asp Pro Glu Asn Phe Asp Thr Leu Ala Val  
 355 360 365  
 Val Phe Asn Arg Ser Ser Arg Phe Gly Arg Leu Gln Ser Ile Lys Cys  
 370 375 380  
 Ala Ile Ala Gly Lys Asn Leu Tyr Leu Arg Phe Thr Cys Ser Thr Gly

385		390		395		400									
Asp	Ala	Met	Gly	Met	Asn	Met	Val	Ser	Lys	Gly	Val	Gln	Asn	Val	Leu
			405						410					415	
Asp	Phe	Leu	Gln	Thr	Asp	Phe	Pro	Asp	Met	Asp	Val	Ile	Gly	Ile	Ser
			420					425					430		
Gly	Asn	Phe	Cys	Ser	Asp	Lys	Lys	Pro	Ala	Ala	Val	Asn	Trp	Ile	Glu
		435					440					445			
Gly	Arg	Gly	Lys	Ser	Val	Val	Cys	Glu	Ala	Ile	Ile	Glu	Gly	Asp	Val
	450					455					460				
Val	Arg	Lys	Val	Leu	Lys	Thr	Ser	Val	Glu	Ser	Leu	Val	Glu	Leu	Asn
465					470					475					480
Met	Leu	Lys	Asn	Leu	Thr	Gly	Ser	Ala	Met	Ala	Gly	Ala	Leu	Gly	Gly
			485						490					495	
Phe	Asn	Ala	His	Ala	Ser	Asn	Ile	Val	Thr	Ala	Ile	Tyr	Ile	Ala	Thr
			500					505					510		
Gly	Gln	Asp	Pro	Ala	Gln	Asn	Val	Glu	Ser	Ser	His	Cys	Ile	Thr	Met
		515					520					525			
Met	Glu	Ala	Val	Asn	Asp	Gly	Lys	Asp	Leu	His	Ile	Ser	Val	Thr	Met
	530					535					540				
Pro	Ser	Ile	Glu	Val	Gly	Thr	Val	Gly	Gly	Gly	Thr	Gln	Leu	Ala	Ser
545					550					555					560
Gln	Ser	Ala	Cys	Leu	Asn	Leu	Leu	Gly	Val	Lys	Gly	Ala	Ser	Lys	Asp
			565						570					575	
Val	Ala	Gly	Ala	Asn	Ser	Arg	Met	Leu	Ala	Thr	Ile	Val	Thr	Gly	Ala
			580					585					590		
Val	Leu	Ala	Gly	Glu	Leu	Ser	Leu	Met	Ser	Ala	Leu	Ala	Ala	Gly	Gln
		595					600					605			
Leu	Val	Lys	Ser	His	Met	Lys	Tyr	Asn	Arg	Ser	Ser	Lys	Asp	Met	Ser
	610					615					620				
Asn	Leu	Ser	Ser												
625															

<210> 198  
 <211> 585  
 <212> PRT  
 <213> *Gossypium hirsutum*

<400> 198

Met Glu Thr His Arg Arg Ser Ser Thr Asn Ser Ile Arg Ser His Lys  
 1 5 10 15

Pro Ala Arg Pro Ile Ala Leu Glu Asp Asp Ser Thr Lys Ala Ser Asp  
 20 25 30

Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr Leu  
 35 40 45

Phe Phe Ser Ala Val Tyr Phe Leu Leu Cys Arg Trp Arg Glu Lys Ile  
 50 55 60

Arg Ser Ser Thr Pro Leu His Val Val Thr Phe Ser Glu Ile Val Ala  
 65 70 75 80

Ile Leu Ala Ser Val Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe Gly  
 85 90 95

Ile Asp Phe Val Gln Ser Leu Val Leu Arg Pro Ser Ala Asp Val Trp  
 100 105 110

Ala Thr Glu Asp Asp Glu Val Glu Ser Glu Val Leu Leu Arg Asn Glu  
 115 120 125

Asp Ala Arg His Val Pro Cys Gly Gln Ala Leu Asp Arg Ser Ile Arg  
 130 135 140

Ser Leu Gln Pro Pro Glu Pro Ile Val Thr Ala Glu Lys Val Phe Asp  
 145 150 155 160

Glu Met Pro Val Thr Val Met Thr Glu Glu Asp Glu Glu Ile Ile Arg  
 165 170 175

Ser Val Val Cys Gly Met Thr Pro Ser Tyr Ser Leu Glu Ser Lys Leu  
 180 185 190

Asp Asp Cys Lys Arg Ala Ala Ala Ile Arg Arg Glu Ala Leu Gln Arg  
 195 200 205

Ile Thr Gly Lys Ser Leu Ser Gly Leu Pro Leu Asp Gly Phe Asp Tyr  
 210 215 220  
 Glu Ser Ile Leu Gly Gln Cys Cys Glu Met Pro Val Gly Tyr Glu Gln  
 225 230 235 240  
 Ile Pro Val Gly Ile Ala Gly Pro Leu Leu Leu Asn Gly Arg Glu Tyr  
 245 250 255  
 Ser Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn  
 260 265 270  
 Arg Gly Cys Lys Ala Ile His Leu Ser Gly Gly Ala Thr Ser Val Leu  
 275 280 285  
 Leu Arg Asp Gly Met Thr Arg Ala Pro Val Val Arg Phe Gly Thr Ala  
 290 295 300  
 Lys Arg Ala Ala Asp Leu Lys Leu Tyr Leu Glu Asp Pro Glu Asn Phe  
 305 310 315 320  
 Glu Thr Leu Ala Cys Val Phe Asn Arg Ser Ser Arg Phe Ala Arg Leu  
 325 330 335  
 Gln Ser Ile Lys Cys Ala Ile Ala Gly Lys Asn Leu Tyr Leu Arg Phe  
 340 345 350  
 Ser Cys Phe Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Gly  
 355 360 365  
 Val Gln Asn Val Leu Asp Phe Leu Gln Thr Asp Phe Pro Asp Met Asp  
 370 375 380  
 Val Ile Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala  
 385 390 395 400  
 Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile  
 405 410 415  
 Ile Asn Gly Asp Val Val Thr Lys Val Leu Lys Thr Ser Val Glu Ser  
 420 425 430  
 Leu Val Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser Ala Met Ala  
 435 440 445  
 Gly Ala Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Thr Ala

450                      455                      460  
 Val Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser  
 465                      470                      475                      480  
 His Cys Ile Thr Met Met Glu Ala Val Asn Gly Gly Lys Asp Leu His  
                     485                      490                      495  
 Val Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly  
                     500                      505                      510  
 Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys  
                     515                      520                      525  
 Gly Ala Ser Lys Glu Ser Pro Gly Ala Asn Ser Ile Leu Leu Ala Thr  
                     530                      535                      540  
 Ile Val Ala Gly Ala Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala  
 545                      550                      555                      560  
 Leu Ala Ala Gly Gln Leu Val Lys Ser His Met Lys Tyr Asn Arg Ser  
                     565                      570                      575  
 Ser Lys Asp Val Ser Lys Val Ser Ser  
                     580                      585  
  
 <210> 199  
 <211> 1045  
 <212> PRT  
 <213> Saccharomyces cerevisiae  
  
 <400> 199  
  
 Met Ser Leu Pro Leu Lys Thr Ile Val His Leu Val Lys Pro Phe Ala  
 1                      5                      10                      15  
  
 Cys Thr Ala Arg Phe Ser Ala Arg Tyr Pro Ile His Val Ile Val Val  
                     20                      25                      30  
  
 Ala Val Leu Leu Ser Ala Ala Ala Tyr Leu Ser Val Thr Gln Ser Tyr  
                     35                      40                      45  
  
 Leu Asn Glu Trp Lys Leu Asp Ser Asn Gln Tyr Ser Thr Tyr Leu Ser  
                     50                      55                      60  
  
 Ile Lys Pro Asp Glu Leu Phe Glu Lys Cys Thr His Tyr Tyr Arg Ser  
 65                      70                      75                      80

Pro Val Ser Asp Thr Trp Lys Leu Leu Ser Ser Lys Glu Ala Ala Asp  
85 90 95

Ile Tyr Thr Pro Phe His Tyr Tyr Leu Ser Thr Ile Ser Phe Gln Ser  
100 105 110

Lys Asp Asn Ser Thr Thr Leu Pro Ser Leu Asp Asp Val Ile Tyr Ser  
115 120 125

Val Asp His Thr Arg Tyr Leu Leu Ser Glu Glu Pro Lys Ile Pro Thr  
130 135 140

Glu Leu Val Ser Glu Asn Gly Thr Lys Trp Arg Leu Arg Asn Asn Ser  
145 150 155 160

Asn Phe Ile Leu Asp Leu His Asn Ile Tyr Arg Asn Met Val Lys Gln  
165 170 175

Phe Ser Asn Lys Thr Ser Glu Phe Asp Gln Phe Asp Leu Phe Ile Ile  
180 185 190

Leu Ala Ala Tyr Leu Thr Leu Phe Tyr Thr Leu Cys Cys Leu Phe Asn  
195 200 205

Asp Met Arg Lys Ile Gly Ser Lys Phe Trp Leu Ser Phe Ser Ala Leu  
210 215 220

Ser Asn Ser Ala Cys Ala Leu Tyr Leu Ser Leu Tyr Thr Thr His Ser  
225 230 235 240

Leu Leu Lys Lys Pro Ala Ser Leu Leu Ser Leu Val Ile Gly Leu Pro  
245 250 255

Phe Ile Val Val Ile Ile Gly Phe Lys His Lys Val Arg Leu Ala Ala  
260 265 270

Phe Ser Leu Gln Lys Phe His Arg Ile Ser Ile Asp Lys Lys Ile Thr  
275 280 285

Val Ser Asn Ile Ile Tyr Glu Ala Met Phe Gln Glu Gly Ala Tyr Leu  
290 295 300

Ile Arg Asp Tyr Leu Phe Tyr Ile Ser Ser Phe Ile Gly Cys Ala Ile  
305 310 315 320

Tyr Ala Arg His Leu Pro Gly Leu Val Asn Phe Cys Ile Leu Ser Thr  
 325 330 335  
 Phe Met Leu Val Phe Asp Leu Leu Leu Ser Ala Thr Phe Tyr Ser Ala  
 340 345 350  
 Ile Leu Ser Met Lys Leu Glu Ile Asn Ile Ile His Arg Ser Thr Val  
 355 360 365  
 Ile Arg Gln Thr Leu Glu Glu Asp Gly Val Val Pro Thr Thr Ala Asp  
 370 375 380  
 Ile Ile Tyr Lys Asp Glu Thr Ala Ser Glu Pro His Phe Leu Arg Ser  
 385 390 395 400  
 Asn Val Ala Ile Ile Leu Gly Lys Ala Ser Val Ile Gly Leu Leu Leu  
 405 410 415  
 Leu Ile Asn Leu Tyr Val Phe Thr Asp Lys Leu Asn Ala Thr Ile Leu  
 420 425 430  
 Asn Thr Val Tyr Phe Asp Ser Thr Ile Tyr Ser Leu Pro Asn Phe Ile  
 435 440 445  
 Asn Tyr Lys Asp Ile Gly Asn Leu Ser Asn Gln Val Ile Ile Ser Val  
 450 455 460  
 Leu Pro Lys Gln Tyr Tyr Thr Pro Leu Lys Lys Tyr His Gln Ile Glu  
 465 470 475 480  
 Asp Ser Val Leu Leu Ile Ile Asp Ser Val Ser Asn Ala Ile Arg Asp  
 485 490 495  
 Gln Phe Ile Ser Lys Leu Leu Phe Phe Ala Phe Ala Val Ser Ile Ser  
 500 505 510  
 Ile Asn Val Tyr Leu Leu Asn Ala Ala Lys Ile His Thr Gly Tyr Met  
 515 520 525  
 Asn Phe Gln Pro Gln Ser Asn Lys Ile Asp Asp Leu Val Val Gln Gln  
 530 535 540  
 Lys Ser Ala Thr Ile Glu Phe Ser Glu Thr Arg Ser Met Pro Ala Ser  
 545 550 555 560  
 Ser Gly Leu Glu Thr Pro Val Thr Ala Lys Asp Ile Ile Ile Ser Glu





Tyr Ser Leu Lys Gln Met Val Glu Glu Tyr Gly Trp Glu Asp Met Glu  
820 825 830

Val Val Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala  
835 840 845

Ile Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Ala Glu Ala Thr  
850 855 860

Ile Pro Gly Asp Val Val Lys Ser Val Leu Lys Ser Asp Val Ser Ala  
865 870 875 880

Leu Val Glu Leu Asn Ile Ser Lys Asn Leu Val Gly Ser Ala Met Ala  
885 890 895

Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn Leu Val Thr Ala  
900 905 910

Leu Phe Leu Ala Leu Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser  
915 920 925

Asn Cys Ile Thr Leu Met Lys Glu Val Asp Gly Asp Leu Arg Ile Ser  
930 935 940

Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile Gly Gly Gly Thr Val  
945 950 955 960

Leu Glu Pro Gln Gly Ala Met Leu Asp Leu Leu Gly Val Arg Gly Pro  
965 970 975

His Pro Thr Glu Pro Gly Ala Asn Ala Arg Gln Leu Ala Arg Ile Ile  
980 985 990

Ala Cys Ala Val Leu Ala Gly Glu Leu Ser Leu Cys Ser Ala Leu Ala  
995 1000 1005

Ala Gly His Leu Val Gln Ser His Met Thr His Asn Arg Lys Thr  
1010 1015 1020

Asn Lys Ala Asn Glu Leu Pro Gln Pro Ser Asn Lys Gly Pro Pro  
1025 1030 1035

Cys Lys Thr Ser Ala Leu Leu  
1040 1045

<210> 200  
 <211> 410  
 <212> PRT  
 <213> Streptomyces carbophilus

<400> 200

Met Thr Glu Met Thr Glu Lys Ala Thr Thr Phe Leu Thr Ser Gln Glu  
 1 5 10 15

Ala Pro Ala Phe Pro Ala Asp Arg Thr Cys Pro Tyr Gln Leu Pro Thr  
 20 25 30

Ala Tyr Ser Arg Leu Arg Asp Glu Pro Asp Ala Leu Arg Pro Val Thr  
 35 40 45

Leu Tyr Asp Gly Arg Arg Ala Trp Val Val Thr Lys His Glu Ala Ala  
 50 55 60

Arg Arg Leu Leu Ala Asp Pro Arg Leu Ser Ser Asp Arg Leu His Ala  
 65 70 75 80

Asp Phe Pro Ala Thr Ser Pro Arg Phe Lys Ala Phe Arg Gln Gly Ser  
 85 90 95

Pro Ala Phe Ile Gly Met Asp Pro Pro Glu His Gly Thr Arg Arg Arg  
 100 105 110

Met Thr Ile Ser Glu Phe Thr Val Lys Arg Ile Lys Gly Met Arg Pro  
 115 120 125

Asp Val Glu Arg Ile Val His Gly Phe Ile Asp Asp Met Leu Ala Ala  
 130 135 140

Gly Pro Thr Ala Asp Leu Val Ser Gln Phe Ala Leu Pro Val Pro Ser  
 145 150 155 160

Met Val Ile Cys His Met Leu Gly Val Pro Tyr Ala Asp His Glu Phe  
 165 170 175

Phe Gln Asp Ala Ser Lys Arg Leu Val Gln Ala Val Asp Ala Asp Ser  
 180 185 190

Ala Val Ala Ala Arg Asp Asp Phe Glu Arg Tyr Leu Asp Gly Leu Ile  
 195 200 205

Thr Lys Leu Glu Ser Glu Pro Gly Thr Gly Leu Leu Gly Lys Leu Val

210	215	220
Thr His Gln Leu Ala Asp Gly Glu Ile Asp Arg Ala Glu Leu Ile Ser 225 230 235 240		
Thr Ala Leu Leu Leu Leu Val Ala Gly His Glu Thr Thr Ala Ser Met 245 250 255		
Thr Ser Leu Ser Val Ile Thr Leu Leu Glu His Pro Asp Gln His Ala 260 265 270		
Ala Leu Arg Ala Asp Pro Ser Leu Val Pro Gly Ala Val Glu Glu Leu 275 280 285		
Leu Arg Val Leu Ala Ile Ala Asp Ile Ala Gly Gly Arg Ile Ala Thr 290 295 300		
Ala Asp Ile Glu Ile Asp Gly Gln Leu Ile Arg Ala Gly Glu Gly Val 305 310 315 320		
Ile Val Thr Asn Ser Ile Ala Asn Arg Asp Ser Ser Val Phe Glu Asn 325 330 335		
Pro Asp Arg Leu Asp Val His Arg Ser Ala Arg His His Leu Ser Phe 340 345 350		
Gly Tyr Gly Val His Gln Cys Leu Gly Gln Asn Leu Ala Arg Leu Glu 355 360 365		
Leu Glu Val Ile Leu Thr Val Leu Phe Asp Arg Ile Pro Thr Leu Arg 370 375 380		
Leu Ala Val Pro Val Glu Gln Leu Thr Leu Arg Pro Gly Thr Thr Ile 385 390 395 400		
Gln Gly Val Asn Glu Leu Pro Val Thr Trp 405 410		

<210> 201  
 <211> 574  
 <212> PRT  
 <213> Solanum tuberosum

<400> 201

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Pro Ser Glu His 1 5 10 15
--

Ile Ser Ser Gly Glu Pro Leu Lys Pro His Asn Gln Asp Ser Ser Val  
 20 25 30

Lys Ala Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Gly Leu  
 35 40 45

Phe Phe Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu His Arg Trp  
 50 55 60

Arg Glu Lys Ile Arg Asn Gly Ile Pro Leu His Val Leu Asn Phe Ser  
 65 70 75 80

Glu Leu Val Ala Met Val Ser Leu Ile Ala Ser Val Ile Tyr Leu Leu  
 85 90 95

Gly Phe Phe Gly Ile Gly Phe Val Gln Ser Phe Val Ser Lys Gly Asn  
 100 105 110

Asn Asp Ser Trp Asp Val Glu Asp Glu Ser Pro Glu Gln Phe Ile Asp  
 115 120 125

Arg Thr Val Thr Pro Pro Pro Val Arg Arg Asn Ile Pro Met Lys Ser  
 130 135 140

Val Pro Val Ala Glu Lys Thr Ala Gln Ile Ile Thr Pro Phe Ser Ser  
 145 150 155 160

Glu Asp Asp Glu Val Val Ile Lys Ser Val Val Glu Gly Arg Ile Pro  
 165 170 175

Ser Tyr Ser Leu Glu Ser Lys Leu Gly Asp Cys Lys Arg Ala Ala Phe  
 180 185 190

Ile Arg Lys Glu Ala Leu Gln Arg Ser Ser Gly Lys Ser Leu Glu Gly  
 195 200 205

Leu Pro Leu Asp Gly Phe Asp Tyr Glu Ser Ile Leu Gly Gln Cys Cys  
 210 215 220

Glu Met Pro Ile Gly Tyr Ile Gln Ile Pro Val Gly Ile Ala Gly Pro  
 225 230 235 240

Leu Leu Leu Asn Gly Lys Glu Phe Ser Val Pro Met Ala Thr Thr Glu  
 245 250 255

Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala Ile Tyr Val  
 260 265 270

Ser Gly Gly Ala Thr Ser Val Leu Phe Arg Asp Ala Met Thr Arg Ala  
 275 280 285

Pro Val Val Arg Phe Gly Ser Ala Lys Arg Ala Ala Glu Leu Lys Phe  
 290 295 300

Phe Val Glu Asp Pro Met Asn Phe Glu Thr Leu Ser Val Val Phe Asn  
 305 310 315 320

Lys Ser Ser Arg Phe Ala Arg Leu Gln Asn Ile Gln Cys Ala Ile Ala  
 325 330 335

Gly Lys Asn Leu Tyr Met Arg Phe Ser Cys Ser Thr Gly Asp Ala Met  
 340 345 350

Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val Leu Asp Tyr Leu  
 355 360 365

Gln Asn Glu Tyr Pro Asp Met Asp Ile Ile Gly Ile Ser Gly Asn Tyr  
 370 375 380

Cys Ser Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly  
 385 390 395 400

Lys Ser Val Val Cys Glu Ala Ile Ile Lys Glu Asp Val Val Lys Lys  
 405 410 415

Val Leu Lys Thr Glu Val Ala Thr Leu Val Glu Leu Asn Met Leu Lys  
 420 425 430

Asn Leu Thr Gly Ser Ala Met Ala Gly Ala Leu Gly Gly Phe Asn Ala  
 435 440 445

His Ala Ser Asn Ile Val Ser Ala Val Tyr Leu Ala Thr Gly Gln Asp  
 450 455 460

Pro Ala Gln Asn Ile Glu Ser Ser His Cys Ile Thr Met Met Glu Ala  
 465 470 475 480

Val Asn Asp Gly Lys Asp Leu His Ile Ser Val Thr Met Pro Ser Ile  
 485 490 495

Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ser Ala

	500		505		510										
Cys	Leu	Asn	Leu	Leu	Gly	Val	Lys	Gly	Ala	Asn	Arg	Glu	Ala	Pro	Gly
	515						520					525			
Ser	Asn	Ala	Arg	Leu	Leu	Ala	Thr	Ile	Val	Ala	Gly	Ser	Val	Leu	Ala
	530					535					540				
Gly	Glu	Leu	Ser	Leu	Met	Ser	Ala	Ile	Ser	Ala	Gly	Gln	Leu	Val	Lys
545					550					555					560
Ser	His	Met	Lys	Tyr	Asn	Arg	Ser	Cys	Lys	Asp	Val	Thr	Lys		
				565					570						
<210> 202															
<211> 595															
<212> PRT															
<213> Solanum tuberosum															
<400> 202															
Met	Asp	Val	Arg	Arg	Arg	Ser	Glu	Lys	Pro	Val	Tyr	Pro	Ser	Lys	Val
1				5					10					15	
Phe	Gly	Ala	Asp	Glu	Lys	Pro	Leu	Lys	Pro	His	Asn	Asn	Gln	Gln	Gln
			20					25					30		
Glu	Asp	Asn	Asn	Thr	Leu	Leu	Ile	Asp	Ala	Ser	Asp	Ala	Leu	Pro	Leu
	35						40					45			
Pro	Leu	Tyr	Leu	Thr	Asn	Gly	Leu	Phe	Phe	Thr	Met	Phe	Phe	Ser	Val
	50					55					60				
Met	Tyr	Phe	Leu	Leu	Ser	Arg	Trp	Arg	Glu	Lys	Ile	Arg	Asn	Ser	Thr
65					70					75					80
Pro	Leu	His	Val	Val	Thr	Leu	Ser	Glu	Leu	Gly	Ala	Ile	Val	Ser	Leu
				85					90					95	
Ile	Ala	Ser	Val	Ile	Tyr	Leu	Leu	Gly	Phe	Phe	Gly	Ile	Gly	Phe	Val
			100					105					110		
Gln	Thr	Phe	Val	Ser	Arg	Gly	Asn	Asn	Asp	Ser	Trp	Asp	Glu	Asn	Asp
		115					120					125			
Glu	Glu	Phe	Leu	Leu	Lys	Glu	Asp	Ser	Arg	Cys	Gly	Pro	Ala	Thr	Thr
	130					135					140				

Leu Gly Cys Ala Ile Pro Ala Pro Pro Ala Arg Gln Ile Ser Pro Met  
 145 150 155 160

Ala Pro Pro Gln Pro Ala Met Ser Met Val Glu Lys Pro Ser Pro Leu  
 165 170 175

Ile Thr Pro Ala Ser Ser Glu Glu Asp Glu Glu Ile Ile Asn Ser Val  
 180 185 190

Val Gln Gly Lys Phe Pro Ser Tyr Ser Leu Val Ile Gln Leu Gly Asp  
 195 200 205

Val Ser Ala Ala Ala Ser Leu Arg Lys Glu Val Met Gln Arg Ile Thr  
 210 215 220

Gly Lys Ser Leu Glu Gly Leu Pro Leu Glu Gly Phe Thr Tyr Glu Ser  
 225 230 235 240

Ile Leu Gly Gln Cys Cys Glu Met Pro Ile Gly Tyr Val Gln Ile Pro  
 245 250 255

Val Gly Ile Ala Gly Pro Leu Leu Leu Asn Gly Lys Glu Phe Ser Val  
 260 265 270

Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly  
 275 280 285

Cys Lys Ala Ile Tyr Ala Ser Gly Gly Ala Thr Cys Ile Val Leu Arg  
 290 295 300

Asp Gly Met Thr Arg Ala Pro Cys Val Arg Phe Gly Thr Ala Lys Arg  
 305 310 315 320

Ala Ala Glu Leu Lys Phe Phe Val Glu Asp Pro Ile Lys Phe Glu Thr  
 325 330 335

Leu Ala Asn Val Phe Asn Gln Ser Ser Arg Phe Gly Arg Leu Gln Arg  
 340 345 350

Ile Gln Cys Ala Ile Ala Gly Lys Asn Leu Tyr Met Arg Phe Val Cys  
 355 360 365

Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Gly Val Gln  
 370 375 380

Asn Val Leu Asp Tyr Leu Gln Asn Glu Tyr Pro Asp Met Asp Val Ile  
 385 390 395 400

Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala Val Asn  
 405 410 415

Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Ile Thr  
 420 425 430

Glu Glu Val Val Lys Lys Val Leu Lys Thr Glu Val Ala Ala Leu Val  
 435 440 445

Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser Ala Met Ala Gly Ala  
 450 455 460

Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Ser Ala Val Phe  
 465 470 475 480

Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Ile Glu Ser Ser His Cys  
 485 490 495

Ile Thr Met Met Glu Ala Val Asn Asp Gly Lys Asp Leu His Ile Ser  
 500 505 510

Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln  
 515 520 525

Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala  
 530 535 540

Asn Arg Glu Ala Pro Gly Ser Asn Ala Arg Leu Leu Ala Thr Val Val  
 545 550 555 560

Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Ile Ser  
 565 570 575

Ala Gly Gln Leu Val Asn Ser His Met Lys Tyr Asn Arg Ser Thr Lys  
 580 585 590

Ala Ser Ser  
 595

<210> 203  
 <211> 1053  
 <212> PRT  
 <213> Schizosaccharomyces pombe



<400> 203

Met Ile Tyr Lys Leu Ala Ala Arg Tyr Pro Ile Gln Val Ile Ala Ile  
1 5 10 15

Val Gly Ile Leu Val Ser Met Ala Tyr Phe Ser Phe Leu Glu Ala Leu  
20 25 30

Thr Gln Glu Asp Phe Pro Val Leu Ile Arg Ala Leu Lys Arg Phe Gly  
35 40 45

Ile Leu Asp Gly Phe Pro Asn Thr Arg Leu Pro Asn Glu Met Ile Leu  
50 55 60

Lys Leu Ser Ser Val Gln Gly Glu Asp Ala Ser Val Trp Glu Gln Ile  
65 70 75 80

Pro Ala Ala Glu Leu Gly Gly Glu Gly Phe Val Asp Phe Asp Ile Thr  
85 90 95

Gln Trp Tyr Tyr Pro Ala Asn Ala Lys Val Asp Val Ala Gln Leu Val  
100 105 110

Glu Pro Tyr Arg Asn Asp Cys Ile Phe His Asp Ala Ser Gly Ala Cys  
115 120 125

His Phe Phe Phe Lys Glu Val Gly Asn Trp Thr Val Ser Ser Ile Ala  
130 135 140

Leu Pro Ser Asn Leu Ala Asn Pro Pro Ile Asp Tyr Phe Leu Asp Ser  
145 150 155 160

Ser Ser Thr Val Ile Gln Arg Ile Leu Pro Ala Ile Arg Glu His Gly  
165 170 175

Ile Ser Trp Ser Trp Leu Leu Gln Leu Ile Ala Arg Thr Trp Met Asn  
180 185 190

Thr Leu Lys Ile Ala Ser Gln Ala Ser Lys Thr Glu Leu Leu Ile Val  
195 200 205

Gly Thr Ala Tyr Ala Cys Met Leu Ile Ser Ile Val Ser Leu Tyr Leu  
210 215 220

Lys Met Arg Arg Leu Gly Ser Lys Phe Trp Leu Phe Phe Ser Val Leu  
225 230 235 240

Leu Ser Thr Leu Phe Ser Val Gln Phe Ala Met Thr Leu Val Arg Ala  
 245 250 255

Ser Gly Val Arg Ile Ser Leu Val Ser Leu Ile Glu Ser Leu Pro Phe  
 260 265 270

Leu Ile Asn Val Val Ala Leu Asp Lys Ala Ala Glu Leu Thr Arg Gln  
 275 280 285

Val Ile Thr Arg Cys Ser Val Ser Asp Ser His Ser Pro Met His Glu  
 290 295 300

Asp Ile Ala Lys Ala Cys Arg Asn Ala Ala Pro Pro Ile Leu Arg His  
 305 310 315 320

Phe Ser Phe Gly Ile Val Val Leu Ala Ile Phe Ser Tyr Cys Asn Phe  
 325 330 335

Gly Ile Lys Gln Phe Phe Leu Phe Ala Ala Val Met Ile Tyr Asp Leu  
 340 345 350

Leu Leu Leu Phe Ser Phe Phe Val Ala Ile Leu Thr Leu Lys Leu Glu  
 355 360 365

Met Arg Arg Tyr Asn Ala Lys Asp Asp Val Arg Lys Val Leu Ile Glu  
 370 375 380

Glu Gly Leu Ser Glu Ser Thr Ala Arg His Val Ala Asp Gly Asn Asp  
 385 390 395 400

Ser Ser Ala Thr Thr Ser Ala Gly Ser Arg Tyr Phe Lys Val Arg Tyr  
 405 410 415

Gly Thr Lys Ile Ile Leu Phe Ile Phe Ile Ala Phe Asn Leu Phe Glu  
 420 425 430

Leu Cys Ser Ile Pro Phe Lys His Tyr Ala Ala Thr Ser Ala Ala Ala  
 435 440 445

Ala Arg Leu Ile Pro Leu Val Arg Ser Gln Tyr Pro Asp Phe Lys Ser  
 450 455 460

Gln Arg Leu Leu Asp Asp Gly Val Phe Asp Asp Val Leu Ser Ala Ile  
 465 470 475 480

Ser Ser Met Ser Asn Ile Glu Ser Pro Ser Val Arg Leu Leu Pro Ala  
 485 490 495

Val Phe Tyr Gly Ala Glu Leu Ser Ser Thr Ser Phe Leu Ser Thr Ile  
 500 505 510

His Ser Phe Ile Asn Asn Trp Ser His Tyr Ile Ser Ala Ser Phe Leu  
 515 520 525

Ser Lys Trp Ile Val Cys Ala Leu Ser Leu Ser Ile Ala Val Asn Val  
 530 535 540

Phe Leu Leu Asn Ala Ala Arg Leu Asn Ser Ile Lys Glu Glu Pro Glu  
 545 550 555 560

Lys Lys Val Val Glu Lys Val Val Glu Val Val Lys Tyr Ile Pro Ser  
 565 570 575

Ser Asn Ser Ser Ser Ile Asp Asp Ile Gln Lys Asp Glu Ile Ala Gln  
 580 585 590

Glu Ser Val Val Arg Ser Leu Glu Glu Cys Ile Thr Leu Tyr Asn Asn  
 595 600 605

Gly Gln Ile Ser Thr Leu Asn Asp Glu Glu Val Val Gln Leu Thr Leu  
 610 615 620

Ala Lys Lys Ile Pro Leu Tyr Ala Leu Glu Arg Val Leu Lys Asp Val  
 625 630 635 640

Thr Arg Ala Val Val Ile Arg Arg Thr Val Val Ser Arg Ser Ser Arg  
 645 650 655

Thr Lys Thr Leu Glu Ser Ser Asn Cys Pro Val Tyr His Tyr Asp Tyr  
 660 665 670

Ser Arg Val Leu Asn Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro  
 675 680 685

Leu Pro Leu Gly Val Ala Gly Pro Leu Ile Ile Asp Gly Lys Pro Phe  
 690 695 700

Tyr Ile Pro Met Ala Thr Thr Glu Gly Ala Leu Val Ala Ser Thr Met  
 705 710 715 720

Arg Gly Cys Lys Ala Ile Asn Ala Gly Gly Gly Ala Val Thr Val Leu



Gly Ala His Met Thr Ser Pro Gly Asp Asn Ser Arg Gln Leu Ala Arg  
 980 985 990

Val Val Ala Ala Ala Val Met Ala Gly Glu Leu Ser Leu Cys Ser Ala  
 995 1000 1005

Leu Ala Ser Gly His Leu Val Lys Ser His Ile Gly Leu Asn Arg  
 1010 1015 1020

Ser Ala Leu Asn Thr Pro Ala Met Asp Ser Ser Ala Lys Lys Pro  
 1025 1030 1035

Ala Thr Asp Ala Leu Lys Ser Val Asn Ser Arg Val Pro Gly Arg  
 1040 1045 1050

<210> 204  
 <211> 856  
 <212> PRT  
 <213> Blattella germanica

<400> 204

Met Val Gly Arg Leu Phe Arg Ala His Gly Gln Phe Cys Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Val Cys Met Leu  
 20 25 30

Thr Val Asp Gln Arg Pro Leu Gly Leu Pro Pro Gly Trp Gly His Asn  
 35 40 45

Cys Ile Thr Leu Glu Glu Tyr Asn Ala Ala Asp Met Ile Val Met Thr  
 50 55 60

Leu Ile Arg Cys Val Ala Val Leu Tyr Ser Tyr Tyr Gln Phe Cys His  
 65 70 75 80

Leu Gln Lys Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly Leu Phe  
 85 90 95

Thr Val Phe Ser Ser Phe Val Phe Ser Ser Ser Val Ile Asn Phe Leu  
 100 105 110

Gly Ser Asp Val Ser Asp Leu Lys Asp Ala Leu Phe Phe Phe Leu Leu  
 115 120 125

Leu Ile Asp Leu Ser Lys Ala Thr Val Leu Ala Gln Phe Ala Leu Ser  
 130 135 140

Ser Arg Ser Gln Asp Glu Val Lys His Asn Ile Ala Arg Gly Ile Ala  
 145 150 155 160

Met Leu Gly Pro Thr Ile Thr Leu Asp Thr Val Val Glu Thr Leu Val  
 165 170 175

Ile Gly Val Gly Met Leu Ser Gly Val Arg Arg Leu Glu Val Leu Cys  
 180 185 190

Cys Phe Ala Cys Met Ser Val Ile Val Asn Tyr Val Val Phe Met Thr  
 195 200 205

Phe Tyr Pro Ala Cys Leu Ser Leu Ile Leu Glu Leu Ser Arg Ser Gly  
 210 215 220

Glu Ser Gly Arg Pro Ala Trp His Asp Lys Ser Leu Ile Ile Lys Ala  
 225 230 235 240

Leu His Glu Glu Asp Gln Lys Pro Asn Pro Val Val Gln Arg Val Lys  
 245 250 255

Val Ile Met Ser Ala Gly Leu Met Leu Val His Ala His Arg Trp Val  
 260 265 270

Arg Cys Leu Ser Ile Ala Leu Trp Pro Asp Leu Thr Ser Leu Arg Tyr  
 275 280 285

Phe Cys Thr His Cys Asp Thr Gly Val Ser Tyr Ser Arg Trp Ser Phe  
 290 295 300

Ala Ser Glu Gly Glu Glu Leu Pro Thr Val Lys Leu Val Thr Gly Asp  
 305 310 315 320

Ser Val Val Asn Ser Asn Ser Thr Asp Asp Ala Gln Leu His Tyr Tyr  
 325 330 335

Ile Met Arg Trp Leu Thr Val Ser Ala Asp His Ile Val Ile Leu Ile  
 340 345 350

Leu Leu Leu Ala Leu Ala Val Lys Phe Val Phe Phe Glu Thr Arg Asp  
 355 360 365

Glu Leu Thr Thr Thr Arg Gly Met Asp Gly Trp Val Glu Val Ser Ser

370		375		380	
Pro Val Glu His Lys Tyr Val Gln Thr Glu Gln Pro Ser Cys Ser Ala					
385		390		395	400
Pro Glu Gln Pro Leu Glu Glu Pro Pro Ala Ser Asn Arg Ser Ile Asp					
	405		410		415
Glu Cys Leu Ser Val Cys Lys Ser Asp Val Gly Ala Gln Ala Leu Ser					
	420		425		430
Asp Cys Glu Val Met Ala Leu Val Thr Ser Gly His Ile Ala Gly Tyr					
	435		440		445
Gln Leu Glu Lys Val Val Arg Asn Pro Glu Arg Gly Val Gly Ile Arg					
	450		455		460
Arg Gln Ile Leu Thr Lys Thr Ala Asp Leu Lys Asp Ala Leu Asp Asn					
465		470		475	480
Leu Pro Tyr Lys Asn Tyr Asp Tyr Leu Lys Val Met Gly Ala Cys Cys					
	485		490		495
Glu Asn Val Ile Gly Tyr Met Pro Val Pro Val Gly Val Ala Gly Pro					
	500		505		510
Leu Asn Leu Asp Gly Arg Leu Val His Val Pro Leu Ala Thr Thr Glu					
	515		520		525
Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Met Arg Ala Leu Met Arg					
	530		535		540
Cys Gly Val Thr Ser Arg Ile Val Ala Asp Gly Met Thr Arg Gly Pro					
545		550		555	560
Val Val Arg Phe Pro Asn Ile Asp Arg Ala Ser Glu Ala Met Leu Trp					
	565		570		575
Met Gln Val Pro Tyr Asn Phe Glu Gln Ile Lys Lys Asn Phe Asp Ser					
	580		585		590
Thr Ser Arg Phe Ala Arg Leu Ser Lys Ile His Ile Arg Val Ala Gly					
	595		600		605
Arg His Leu Phe Ile Arg Phe Ile Ala Thr Thr Gly Asp Ala Met Gly					
	610		615		620

Met Asn Met Leu Ser Lys Gly Thr Glu Val Ala Leu Ala Tyr Val Gln  
625 630 635 640

Gln Val Tyr Pro Asp Met Glu Ile Leu Ser Leu Ser Gly Asn Phe Cys  
645 650 655

Thr Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys  
660 665 670

Ser Val Val Cys Glu Ala Ile Val Pro Ala Asp Ile Ile Lys Ser Val  
675 680 685

Leu Lys Thr Ser Val Gln Ala Leu Met Asp Val Asn Ile Thr Lys Asn  
690 695 700

Leu Ile Gly Ser Ala Val Ala Gly Ser Ile Gly Gly Phe Asn Ala His  
705 710 715 720

Ala Ala Asn Ile Val Thr Ala Ile Phe Ile Ala Thr Gly Gln Asp Pro  
725 730 735

Ala Gln Asn Val Gly Ser Ser Asn Cys Met Thr Leu Met Glu Pro Trp  
740 745 750

Gly Glu Asp Gly Lys Asp Leu Tyr Val Ser Cys Thr Met Pro Ser Ile  
755 760 765

Glu Ile Gly Thr Ile Gly Gly Gly Thr Val Leu Pro Pro Gln Ala Ala  
770 775 780

Cys Leu Asp Met Leu Gly Val Arg Gly Ala Asn Glu Met Cys Pro Gly  
785 790 795 800

Glu Asn Ala Asn Thr Leu Ala Arg Ile Val Cys Gly Thr Val Leu Ala  
805 810 815

Gly Glu Leu Ser Leu Met Ser Ala Leu Ala Ala Gly His Leu Val Lys  
820 825 830

Ser His Met Arg His Asn Arg Ser Ser Val Ser Thr Ser Gly Ser Glu  
835 840 845

Pro Ser Thr Pro Ala Cys Lys Ser  
850 855



<210> 205  
 <211> 277  
 <212> PRT  
 <213> Sphaceloma manihoticola

<400> 205

Met Ala Ala Gly Phe Pro Gly Tyr Ala Leu Glu Lys Thr Leu Glu Asp  
 1 5 10 15

Lys Thr Arg Ala Val Lys Ile Arg Arg Ala Met Ile Ala Arg Thr Pro  
 20 25 30

Ala Thr Thr Lys His Ser Arg Leu Leu Glu Ser Ser Asn Leu Pro Tyr  
 35 40 45

Gln His Phe Asp Tyr Asp Arg Val Phe Gly Ala Cys Cys Glu Asn Val  
 50 55 60

Ile Gly Tyr Met Pro Leu Pro Val Gly Val Ala Gly Pro Leu Thr Ile  
 65 70 75 80

Asp Gly Glu Ser Tyr Phe Leu Pro Met Ala Thr Thr Glu Gly Val Leu  
 85 90 95

Val Ala Ser Thr Ser Arg Gly Cys Lys Ala Ile Asn Ala Gly Gly Gly  
 100 105 110

Ala Val Thr Val Leu Thr Ala Asp Gly Met Thr Arg Gly Pro Cys Val  
 115 120 125

Gly Phe Glu Thr Leu Ala Arg Ala Ala Ala Ala Ala Lys Leu Trp Leu  
 130 135 140

Asp Ser Glu Glu Gly Gln Lys Val Met Lys Asp Ala Phe Asn Ser Thr  
 145 150 155 160

Ser Arg Phe Ala Arg Leu Gln Gln Leu Lys Thr Ser Leu Ala Gly Thr  
 165 170 175

Tyr Val Tyr Ile Arg Phe Lys Thr Thr Thr Gly Glu Ala Met Gly Met  
 180 185 190

Asn Met Ile Ser Lys Gly Val Glu Lys Ala Leu Asp Val Met Ala Lys  
 195 200 205

Glu Ser Gly Phe Glu Asp Met Ala Ile Ile Ser Val Ser Gly Asn Phe

210                      215                      220  
 Cys Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Asp Gly Arg Gly  
 225                      230                      235                      240  
 Lys Ser Val Val Ala Glu Ala Ile Ile Pro Gly Asp Val Val Arg Ser  
                     245                      250                      255  
 Val Leu Lys Ser Asp Val Asn Ala Leu Val Glu Leu Asn Val Ser Lys  
                     260                      265                      270  
 Asn Leu Ile Gly Ser  
                     275  
  
 <210> 206  
 <211> 583  
 <212> PRT  
 <213> Raphanus sativus  
  
 <400> 206  
 Met Asp Ile Arg Arg Arg Pro Pro Lys Pro Pro Val Asn Asn Pro Asn  
 1                      5                      10                      15  
 Arg Phe Ser Asn Asp Asn Asp Asp Gln Pro Arg Thr Lys Ala Ser Asp  
                     20                      25                      30  
 Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr Leu  
                     35                      40                      45  
 Phe Phe Ser Val Ala Tyr Tyr Leu Leu Arg Arg Trp Arg Asp Lys Ile  
                     50                      55                      60  
 Arg His Ser Thr Pro Leu His Val Ile Thr Ile Thr Glu Leu Gly Ala  
 65                      70                      75                      80  
 Leu Leu Ala Leu Val Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe Gly  
                     85                      90                      95  
 Ile Asp Phe Val Gln Ser Phe Ile Ser Arg Ala Asp Thr Asn Asn Glu  
                     100                      105                      110  
 Phe Glu Asp His Arg Leu Val Thr Cys Leu Pro Arg Gly Asp Val Glu  
                     115                      120                      125  
 Val Trp Trp Cys His Val Pro Met Gln Ile Thr Ser Leu Lys Thr Thr  
                     130                      135                      140

Ala Ser Ser Arg Ala Pro Arg Gly Gly Arg Arg Val Val Asp Pro Thr  
 145 150 155 160

Leu Pro Glu Glu Asp Glu Glu Ile Val Lys Ser Val Ile Arg Gly Val  
 165 170 175

Ile Pro Ser Tyr Ser Leu Glu Ser Ser Leu Gly Glu Cys Lys Arg Ala  
 180 185 190

Ala Ala Ile Arg Arg Glu Ala Leu Gln Arg Ile Thr Gly Arg Ser Ile  
 195 200 205

Glu Gly Leu Pro Leu Glu Gly Phe Asp Tyr Glu Ser Ile Leu Gly Gln  
 210 215 220

Cys Cys Glu Met Pro Val Gly Tyr Val Gln Ile Pro Val Gly Ile Ala  
 225 230 235 240

Gly Pro Leu Leu Leu Asp Gly Cys Glu Tyr Ser Val Pro Met Ala Thr  
 245 250 255

Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala Met  
 260 265 270

Tyr Val Ser Gly Gly Gly Thr Ser Thr Val Val Lys Asp Gly Met Thr  
 275 280 285

Arg Ala Pro Val Val Arg Phe Ala Ser Ala Arg Arg Ala Ser Glu Leu  
 290 295 300

Lys Phe Tyr Leu Glu Asp Leu Glu Asn Phe Asp Thr Leu Ala Val Val  
 305 310 315 320

Phe Asn Arg Ser Ser Arg Phe Ala Arg Leu Gln Ser Val Lys Cys Thr  
 325 330 335

Leu Ala Gly Lys Asn Ala Tyr Val Arg Phe Ser Cys Ser Thr Gly Asp  
 340 345 350

Ala Met Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val Leu Glu  
 355 360 365

Phe Leu Thr Asp Asp Phe Pro Asp Met Asp Val Ile Gly Ile Ser Gly  
 370 375 380

Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly  
385 390 395 400

Arg Gly Lys Ser Val Val Cys Glu Ala Val Ile Arg Gly Glu Ile Val  
405 410 415

Asn Lys Val Leu Lys Thr Ser Val Ala Ala Leu Val Glu Leu Asn Met  
420 425 430

Leu Lys Asn Leu Thr Gly Ser Ala Val Ala Gly Ser Leu Gly Gly Phe  
435 440 445

Asn Ala His Ala Ser Asn Ile Val Ser Ala Val Phe Ile Ala Thr Gly  
450 455 460

Gln Asp Pro Ala Gln Asn Val Glu Leu Ser Gln Cys Ile Thr Met Met  
465 470 475 480

Glu Ala Val Asn Asp Gly Lys Asp Ile His Val Ser Val Thr Met Pro  
485 490 495

Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln  
500 505 510

Ser Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala Ser Thr Glu Ser  
515 520 525

Pro Gly Met Asn Ser Arg Thr Leu Ala Thr Ile Val Ala Gly Ala Val  
530 535 540

Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Ile Ala Ala Gly Gln Leu  
545 550 555 560

Val Lys Ser His Met Lys Tyr Asn Arg Ser Ser Arg Asp Ile Ser Gly  
565 570 575

Ala Met Thr Ala Thr Thr Thr  
580

<210> 207  
<211> 976  
<212> PRT  
<213> Gibberella fujikuroi

<400> 207

Met Asp His Glu Gly Cys Gln Gly Gln His Pro Gln Gln Cys Cys Gln  
1 5 10 15

Trp Val Ser Asn Ala Trp Ser Glu Phe Leu Asp Leu Leu Lys Asn Ala  
 20 25 30

Glu Thr Leu Asp Ile Val Ile Met Leu Leu Gly Tyr Ile Ala Met His  
 35 40 45

Leu Thr Phe Val Ser Leu Phe Leu Ser Met Arg Lys Met Gly Ser Lys  
 50 55 60

Phe Trp Leu Gly Ile Cys Thr Leu Phe Ser Ser Val Phe Ala Phe Leu  
 65 70 75 80

Phe Gly Leu Val Val Thr Thr Lys Leu Gly Val Pro Ile Ser Val Ile  
 85 90 95

Leu Leu Ser Glu Gly Leu Pro Phe Leu Val Val Thr Ile Gly Phe Glu  
 100 105 110

Lys Asn Ile Val Leu Thr Arg Ala Val Met Ser His Ala Ile Glu His  
 115 120 125

Arg Arg Ile Gln Ala Gln Asn Ser Lys Ser Gly Lys Arg Ser Pro Asp  
 130 135 140

Gly Ser Thr Gln Asn Met Ile Gln Tyr Ala Val Gln Ala Ala Ile Lys  
 145 150 155 160

Glu Lys Gly Phe Glu Ile Ile Arg Asp Tyr Ala Ile Glu Ile Val Ile  
 165 170 175

Leu Val Ile Gly Ala Ala Ser Gly Val Gln Gly Gly Leu Gln Gln Phe  
 180 185 190

Cys Phe Leu Ala Ala Trp Thr Leu Phe Phe Asp Phe Ile Leu Leu Phe  
 195 200 205

Thr Phe Tyr Thr Ala Ile Leu Ser Ile Lys Leu Arg Ser Thr Val Ser  
 210 215 220

Ser Val Met Ser Ile Cys Val Trp Pro Leu Arg Met Met Ala Ser Arg  
 225 230 235 240

Arg Val Ala Glu Asn Val Ala Lys Gly Asp Asp Glu Leu Asn Arg Val  
 245 250 255

Arg Gly Asp Ala Pro Leu Phe Gly Arg Lys Ser Ser Ser Ile Pro Lys  
260 265 270

Phe Lys Val Leu Met Ile Leu Gly Phe Ile Phe Val Asn Ile Val Asn  
275 280 285

Ile Cys Ser Ile Pro Phe Arg Asn Pro Ser Ser Met Ser Thr Ile Arg  
290 295 300

Thr Trp Ala Ser Ser Leu Gly Gly Val Ile Ala Pro Leu Ser Val Asp  
305 310 315 320

Pro Phe Lys Val Ala Ser Asn Gly Leu Asp Ala Ile Leu Pro Thr Ala  
325 330 335

Lys Ser Asn Asn Arg Pro Thr Leu Val Thr Val Leu Thr Pro Ile Lys  
340 345 350

Tyr Glu Leu Glu Tyr Pro Ser Ile His Tyr Ala Leu Gly Ser Ala Ala  
355 360 365

Ser Asn Pro Ala Tyr Asn Asp Ala Phe His His His Phe Gln Gly Tyr  
370 375 380

Gly Val Gly Gly Arg Met Val Gly Gly Ile Leu Lys Ser Leu Glu Asp  
385 390 395 400

Pro Val Leu Ser Lys Trp Ile Val Ile Ala Leu Ala Leu Ser Val Ala  
405 410 415

Leu Asn Gly Tyr Leu Phe Asn Val Ala Arg Trp Gly Ile Lys Asp Pro  
420 425 430

Asn Val Pro Glu His Asn Ile Asp Arg Asn Glu Leu Ala Arg Ala Arg  
435 440 445

Glu Phe Asn Asp Thr Gly Ser Ala Thr Leu Pro Leu Gly Glu Tyr Val  
450 455 460

Pro Pro Thr Pro Met Arg Thr Gln Pro Ser Thr Pro Ala Ile Thr Asp  
465 470 475 480

Asp Glu Ala Glu Gly Leu His Met Thr Lys Ala Arg Pro Ala Asn Leu  
485 490 495

Pro Asn Arg Ser Asn Glu Glu Leu Glu Lys Leu Leu Ser Glu Asn Ala  
 500 505 510

Leu Arg Glu Met Thr Asp Glu Glu Val Ile Ser Leu Ser Met Arg Gly  
 515 520 525

Lys Ile Pro Gly Tyr Ala Leu Glu Lys Thr Leu Gly Asp Phe Thr Arg  
 530 535 540

Ala Val Lys Ile Arg Arg Ser Ile Ile Ala Arg Asn Lys Ala Ala Ala  
 545 550 555 560

Asp Ile Thr His Ser Leu Asp Arg Ser Lys Leu Pro Tyr Glu Asn Tyr  
 565 570 575

Asn Trp Glu Arg Phe Phe Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr  
 580 585 590

Met Pro Leu Pro Val Gly Val Ala Gly Pro Leu Val Ile Asp Gly Gln  
 595 600 605

Ser Tyr Phe Ile Pro Met Ala Thr Thr Glu Gly Val Leu Val Ala Ser  
 610 615 620

Ala Ser Arg Gly Cys Lys Ala Ile Asn Ser Gly Gly Gly Ala Ile Thr  
 625 630 635 640

Val Leu Thr Ala Asp Gly Met Thr Arg Gly Pro Cys Val Ala Phe Glu  
 645 650 655

Thr Leu Glu Arg Ala Gly Ala Ala Lys Leu Trp Leu Asp Ser Glu Ala  
 660 665 670

Gly Gln Asp Met Met Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala  
 675 680 685

Arg Leu Gln Ser Met Lys Thr Ala Leu Ala Gly Thr Asn Leu Tyr Ile  
 690 695 700

Arg Phe Lys Thr Thr Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser  
 705 710 715 720

Lys Gly Val Glu His Ala Leu Ser Val Met Ala Asn Asp Gly Gly Phe  
 725 730 735

Asp Asp Met Gln Ile Ile Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys

740					745					750					
Lys	Ala	Ala	Ala	Leu	Asn	Trp	Ile	Asp	Gly	Arg	Gly	Lys	Gly	Val	Val
	755						760					765			
Ala	Glu	Ala	Ile	Ile	Pro	Gly	Glu	Val	Val	Arg	Ser	Val	Leu	Lys	Ser
	770					775					780				
Asp	Val	Asp	Ser	Leu	Val	Glu	Leu	Asn	Val	Ala	Lys	Asn	Leu	Ile	Gly
785						790					795				800
Ser	Ala	Met	Ala	Gly	Ser	Val	Gly	Gly	Phe	Asn	Ala	His	Ala	Ala	Asn
				805					810						815
Ile	Val	Ala	Ala	Ile	Phe	Leu	Ala	Thr	Gly	Gln	Asp	Pro	Ala	Gln	Val
				820					825						830
Val	Glu	Ser	Ala	Asn	Cys	Ile	Thr	Ile	Met	Lys	Asn	Leu	Asn	Gly	Ala
				835					840						845
Leu	Gln	Ile	Ser	Val	Ser	Met	Pro	Ser	Leu	Glu	Val	Gly	Thr	Leu	Gly
	850					855					860				
Gly	Gly	Thr	Ile	Leu	Glu	Pro	Gln	Gly	Ala	Met	Leu	Asp	Ile	Leu	Gly
865						870					875				880
Val	Arg	Gly	Ser	His	Pro	Thr	Asn	Pro	Gly	Asp	Asn	Ala	Arg	Arg	Leu
				885					890						895
Ala	Arg	Ile	Ile	Gly	Ala	Ala	Val	Leu	Ala	Gly	Glu	Leu	Ser	Leu	Cys
				900					905						910
Ser	Ala	Leu	Ala	Ala	Gly	His	Leu	Val	Arg	Ala	His	Met	Gln	His	Asn
				915					920						925
Arg	Ser	Ala	Ala	Pro	Ser	Arg	Ser	Thr	Thr	Pro	Gly	Ser	Ser	His	Asp
				930					935						940
Ala	Arg	Leu	Thr	Gly	His	Asp	Gln	Cys	Pro	Arg	Ala	Leu	Ser	Val	Asn
945						950					955				960
Asn	Val	Asp	Glu	Arg	Arg	Arg	Tyr	Ser	Glu	Val	Lys	Ala	Ile	Asp	Glu
				965					970						975

<210> 208

<211> 244



<212> PRT  
<213> Rattus norvegicus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(244)  
<223> x equals unknown

<400> 208

Pro Ile Arg Ser Pro Lys Arg Gly Thr Ser Met Gly Met Asn Met Ile  
1 5 10 15

Ser Lys Gly Thr Glu Lys Ala Leu Leu Lys Leu Gln Glu Phe Phe Pro  
20 25 30

Glu Leu Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys  
35 40 45

Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys Thr Val Val Cys  
50 55 60

Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val Leu Lys Ser Thr  
65 70 75 80

Thr Glu Ala Met Val Asp Val Asn Ile Asn Lys Asn Leu Val Gly Ser  
85 90 95

Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala Ala Asn Ile  
100 105 110

Val Thr Ala Ile Tyr Ile Ala Cys Ala Gln Asp Ala Ala Gln Asn Val  
115 120 125

Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly Pro Xaa Xaa  
130 135 140

Glu Asp Leu Xaa Xaa Ser Xaa Xaa Met Pro Ser Ile Glu Ile Gly Thr  
145 150 155 160

Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys Leu Gln Met  
165 170 175

Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg  
180 185 190

Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly Glu Leu Ser  
195 200 205

Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Arg Ser His Met Val  
 210 215 220

His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly Thr Cys Thr  
 225 230 235 240

Lys Lys Ala Ala

<210> 209  
 <211> 592  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 209

Met Asp Leu Arg Arg Arg Pro Pro Lys Pro Pro Val Thr Asn Asn Asn  
 1 5 10 15

Asn Ser Asn Gly Ser Phe Arg Ser Tyr Gln Pro Arg Thr Ser Asp Asp  
 20 25 30

Asp His Arg Arg Arg Ala Thr Thr Ile Ala Pro Pro Pro Lys Ala Ser  
 35 40 45

Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr  
 50 55 60

Leu Phe Phe Ser Val Ala Tyr Tyr Leu Leu His Arg Trp Arg Asp Lys  
 65 70 75 80

Ile Arg Tyr Asn Thr Pro Leu His Val Val Thr Ile Thr Glu Leu Gly  
 85 90 95

Ala Ile Ile Ala Leu Ile Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe  
 100 105 110

Gly Ile Asp Phe Val Gln Ser Phe Ile Ser Arg Ala Ser Gly Asp Ala  
 115 120 125

Trp Asp Leu Ala Asp Thr Ile Asp Asp Asp Asp His Arg Leu Val Thr  
 130 135 140

Cys Ser Pro Pro Thr Pro Ile Val Ser Val Ala Lys Leu Pro Asn Pro  
 145 150 155 160

Glu Pro Ile Val Thr Glu Ser Leu Pro Glu Glu Asp Glu Glu Ile Val  
165 170 175

Lys Ser Val Ile Asp Gly Val Ile Pro Ser Tyr Ser Leu Glu Ser Arg  
180 185 190

Leu Gly Asp Cys Lys Arg Ala Ala Ser Ile Arg Arg Glu Ala Leu Gln  
195 200 205

Arg Val Thr Gly Arg Ser Ile Glu Gly Leu Pro Leu Asp Gly Phe Asp  
210 215 220

Tyr Glu Ser Ile Leu Gly Gln Cys Cys Glu Met Pro Val Gly Tyr Ile  
225 230 235 240

Gln Ile Pro Val Gly Ile Ala Gly Pro Leu Leu Leu Asp Gly Tyr Glu  
245 250 255

Tyr Ser Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr  
260 265 270

Asn Arg Gly Cys Lys Ala Met Phe Ile Ser Gly Gly Ala Thr Ser Thr  
275 280 285

Val Leu Lys Asp Gly Met Thr Arg Ala Pro Val Val Arg Phe Ala Ser  
290 295 300

Ala Arg Arg Ala Ser Glu Leu Lys Phe Phe Leu Glu Asn Pro Glu Asn  
305 310 315 320

Phe Asp Thr Leu Ala Val Val Phe Asn Arg Ser Ser Arg Phe Ala Arg  
325 330 335

Leu Gln Ser Val Lys Cys Thr Ile Ala Gly Lys Asn Ala Tyr Val Arg  
340 345 350

Phe Cys Cys Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys  
355 360 365

Gly Val Gln Asn Val Leu Glu Tyr Leu Thr Asp Asp Phe Pro Asp Met  
370 375 380

Asp Val Ile Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala  
385 390 395 400

Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala

405	410	415
Val Ile Arg Gly Glu Ile Val Asn Lys Val Leu Lys Thr Ser Val Ala		
420	425	430
Ala Leu Val Glu Leu Asn Met Leu Lys Asn Leu Ala Gly Ser Ala Val		
435	440	445
Ala Gly Ser Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Ser		
450	455	460
Ala Val Phe Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser		
465	470	475
Ser Gln Cys Ile Thr Met Met Glu Ala Ile Asn Asp Gly Lys Asp Ile		
485	490	495
His Ile Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly		
500	505	510
Gly Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val		
515	520	525
Lys Gly Ala Ser Thr Glu Ser Pro Gly Met Asn Ala Arg Arg Leu Ala		
530	535	540
Thr Ile Val Ala Gly Ala Val Leu Ala Gly Glu Leu Ser Leu Met Ser		
545	550	555
Ala Ile Ala Ala Gly Gln Leu Val Arg Ser His Met Lys Tyr Asn Arg		
565	570	575
Ser Ser Arg Asp Ile Ser Gly Ala Thr Thr Thr Thr Thr Thr Thr Thr		
580	585	590

<210> 210  
 <211> 462  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Non\_Ter

<220>  
 <221> NON\_TER  
 <222> (1)..(462)  
 <223> Non\_Ter

<400> 210

Met Val Leu Val Thr Gln Glu Pro Glu Ile Glu Leu Pro Arg Glu Pro  
1 5 10 15

Arg Pro Asn Glu Glu Cys Leu Gln Ile Leu Gly Asn Ala Glu Lys Gly  
20 25 30

Ala Lys Phe Leu Ser Asp Ala Glu Ile Ile Gln Leu Val Asn Ala Lys  
35 40 45

His Ile Pro Ala Tyr Lys Leu Glu Thr Leu Met Glu Thr His Glu Arg  
50 55 60

Gly Val Ser Ile Arg Arg Gln Leu Leu Ser Lys Lys Leu Ser Glu Pro  
65 70 75 80

Ser Ser Leu Gln Tyr Leu Pro Tyr Arg Asp Tyr Asn Tyr Ser Leu Val  
85 90 95

Met Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val  
100 105 110

Gly Val Ala Gly Pro Leu Cys Leu Asp Glu Lys Glu Phe Gln Val Pro  
115 120 125

Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys  
130 135 140

Arg Ala Ile Gly Leu Gly Gly Gly Ala Ser Ser Arg Val Leu Ala Asp  
145 150 155 160

Gly Met Thr Arg Gly Pro Val Val Arg Leu Pro Arg Ala Cys Asp Ser  
165 170 175

Ala Glu Val Lys Ala Trp Leu Glu Thr Ser Glu Gly Phe Ala Val Ile  
180 185 190

Lys Glu Ala Phe Asp Ser Thr Ser Arg Phe Ala Arg Leu Gln Lys Leu  
195 200 205

His Thr Ser Ile Ala Gly Arg Asn Leu Tyr Ile Arg Phe Gln Ser Arg  
210 215 220

Ser Gly Asp Ala Met Gly Met Asn Met Ile Ser Lys Gly Thr Glu Lys  
225 230 235 240

Ala Leu Ser Lys Leu His Glu Tyr Phe Pro Glu Met Gln Ile Leu Ala  
245 250 255

Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp  
260 265 270

Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Val Ile Pro Ser  
275 280 285

Lys Val Val Arg Glu Val Leu Lys Thr Thr Thr Glu Ala Met Ile Glu  
290 295 300

Val Asn Ile Asn Lys Asn Leu Val Gly Ser Ala Met Ala Gly Ser Ile  
305 310 315 320

Gly Gly Tyr Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile  
325 330 335

Ala Cys Gly Gln Asp Ala Ala Gln Asn Val Gly Ser Ser Asn Cys Ile  
340 345 350

Thr Leu Met Glu Ala Ser Gly Pro Thr Asn Glu Asp Leu Tyr Ile Ser  
355 360 365

Cys Thr Met Pro Ser Ile Glu Ile Gly Thr Val Gly Gly Gly Thr Asn  
370 375 380

Leu Leu Pro Gln Gln Ala Cys Leu Gln Met Leu Gly Val Gln Gly Ala  
385 390 395 400

Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg Gln Leu Ala Arg Ile Val  
405 410 415

Cys Gly Thr Val Met Ala Gly Glu Leu Ser Leu Met Ala Ala Leu Ala  
420 425 430

Ala Gly His Leu Val Lys Ser His Met Ile His Asn Arg Ser Lys Ile  
435 440 445

Asn Leu Gln Asp Leu Gln Gly Ala Cys Thr Lys Lys Thr Ala  
450 455 460

<210> 211  
<211> 115  
<212> PRT  
<213> Artificial Sequence

<220>

<223> NON\_TER

<220>

<221> NON\_TER

<222> (1)..(115)

<223>

<400> 211

Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly Pro Thr Asn Glu  
1 5 10 15

Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile Glu Ile Gly Thr Val  
20 25 30

Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys Leu Gln Met Leu  
35 40 45

Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg Gln  
50 55 60

Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly Glu Leu Ser Leu  
65 70 75 80

Met Ala Ala Leu Ala Ala Gly His Leu Val Lys Ser His Met Ile His  
85 90 95

Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly Ala Cys Thr Lys  
100 105 110

Lys Thr Ala  
115

<210> 212

<211> 102

<212> PRT

<213> Artificial Sequence

<220>

<223> NON\_TER

<220>

<221> NON\_TER

<222> (1)..(102)

<223> NON\_TER

<400> 212

Leu His Glu Tyr Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn

1                      5                      10                      15  
 Tyr Cys Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg  
                     20                      25                      30  
 Gly Lys Ser Val Val Cys Glu Ala Val Ile Pro Ser Lys Val Val Arg  
                     35                      40                      45  
 Glu Val Leu Lys Thr Thr Thr Glu Ala Met Ile Glu Val Asn Ile Asn  
                     50                      55                      60  
 Lys Asn Leu Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn  
                     65                      70                      75                      80  
 Ala His Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln  
                     85                      90                      95  
 Asp Ala Ala Gln Asn Val  
                     100

<210> 213  
 <211> 119  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> NON\_TER  
 <220>  
 <221> NON\_TER  
 <222> (1)..(119)  
 <223> NON\_TER

<400> 213

Phe Gln Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr  
 1                      5                      10                      15  
 Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly Gly Gly Ala Ser Ser Arg  
                     20                      25                      30  
 Val Leu Ala Asp Gly Met Thr Arg Gly Pro Val Val Arg Leu Pro Arg  
                     35                      40                      45  
 Ala Cys Asp Ser Ala Glu Val Lys Ala Trp Leu Glu Thr Ser Glu Gly  
                     50                      55                      60  
 Phe Ala Val Ile Lys Glu Ala Phe Asp Ser Thr Ser Arg Phe Ala Arg  
                     65                      70                      75                      80



Leu Gln Lys Leu His Thr Ser Ile Ala Gly Arg Asn Leu Tyr Ile Arg  
85 90 95

Phe Gln Ser Arg Ser Gly Asp Ala Met Gly Met Asn Met Ile Ser Lys  
100 105 110

Gly Thr Glu Lys Ala Leu Ser  
115

<210> 214  
<211> 123  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> NON\_TER

<220>  
<221> NON\_TER  
<222> (1)..(123)  
<223> NON\_TER

<400> 214

Met Val Leu Val Thr Gln Glu Pro Glu Ile Glu Leu Pro Arg Glu Pro  
1 5 10 15

Arg Pro Asn Glu Glu Cys Leu Gln Ile Leu Gly Asn Ala Glu Lys Gly  
20 25 30

Ala Lys Phe Leu Ser Asp Ala Glu Ile Ile Gln Leu Val Asn Ala Lys  
35 40 45

His Ile Pro Ala Tyr Lys Leu Glu Thr Leu Met Glu Thr His Glu Arg  
50 55 60

Gly Val Ser Ile Arg Arg Gln Leu Leu Ser Lys Lys Leu Ser Glu Pro  
65 70 75 80

Ser Ser Leu Gln Tyr Leu Pro Tyr Arg Asp Tyr Asn Tyr Ser Leu Val  
85 90 95

Met Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val  
100 105 110

Gly Val Ala Gly Pro Leu Cys Leu Asp Glu Lys  
115 120

<210> 215  
 <211> 562  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 215

Met Glu Asp Leu Arg Arg Arg Phe Pro Thr Lys Lys Asn Gly Glu Glu  
 1 5 10 15

Ile Ser Asn Val Ala Val Asp Pro Pro Leu Arg Lys Ala Ser Asp Ala  
 20 25 30

Leu Pro Leu Pro Leu Tyr Leu Thr Asn Thr Phe Phe Leu Ser Leu Phe  
 35 40 45

Phe Ala Thr Val Tyr Phe Leu Leu Ser Arg Trp Arg Glu Lys Ile Arg  
 50 55 60

Asn Ser Thr Pro Leu His Val Val Asp Leu Ser Glu Ile Cys Ala Leu  
 65 70 75 80

Ile Gly Phe Val Ala Ser Phe Ile Tyr Leu Leu Gly Phe Cys Gly Ile  
 85 90 95

Asp Leu Ile Phe Arg Ser Ser Ser Asp Asp Asp Val Trp Val Asn Asp  
 100 105 110

Gly Met Ile Pro Cys Asn Gln Ser Leu Asp Cys Arg Glu Val Leu Pro  
 115 120 125

Ile Lys Pro Asn Ser Val Asp Pro Pro Arg Glu Ser Glu Leu Asp Ser  
 130 135 140

Val Glu Asp Glu Glu Ile Val Lys Leu Val Ile Asp Gly Thr Ile Pro  
 145 150 155 160

Ser Tyr Ser Leu Glu Thr Lys Leu Gly Asp Cys Lys Arg Ala Ala Ala  
 165 170 175

Ile Arg Arg Glu Ala Val Gln Arg Ile Thr Gly Lys Ser Leu Thr Gly  
 180 185 190

Leu Pro Leu Glu Gly Phe Asp Tyr Asn Ser Ile Leu Gly Gln Cys Cys  
 195 200 205

Glu Met Pro Val Gly Tyr Val Gln Ile Pro Val Gly Ile Ala Gly Pro

210	215	220														
Leu 225	Leu	Leu	Asp	Gly	Val 230	Glu	Tyr	Ser	Val	Pro 235	Met	Ala	Thr	Thr	Glu 240	
Gly	Cys	Leu	Val	Ala 245	Ser	Thr	Asn	Arg	Gly 250	Phe	Lys	Ala	Ile	His	Leu 255	
Ser	Gly	Gly	Ala 260	Phe	Ser	Val	Leu	Val 265	Lys	Asp	Ala	Met	Thr	Arg	Ala 270	
Pro	Val	Val	Arg	Phe	Pro	Ser	Ala 280	Arg	Arg	Ala	Ala	Leu	Val	Met	Phe 285	
Tyr	Leu 290	Gln	Asp	Pro	Ser	Asn 295	Phe	Glu	Arg	Leu	Ser 300	Leu	Ile	Phe	Asn	
Lys 305	Ser	Ser	Arg	Phe	Ala 310	Arg	Leu	Gln	Ser	Ile 315	Thr	Cys	Thr	Ile	Ala 320	
Gly	Arg	Asn	Leu	Tyr 325	Pro	Arg	Phe	Ala	Cys 330	Ser	Thr	Gly	Asp	Ala	Met 335	
Gly	Met	Asn	Met	Val 340	Ser	Lys	Gly	Val 345	Gln	Asn	Val	Leu	Asp	Phe	Val 350	
Lys	Ser	Glu	Phe	Pro	Asp	Met	Asp 360	Val	Ile	Gly	Ile	Ser	Gly	Asn	Tyr 365	
Cys 370	Ser	Asp	Lys	Lys	Ala	Ser 375	Ala	Val	Asn	Trp	Ile	Glu	Gly	Arg	Gly 380	
Lys 385	His	Val	Val	Cys	Glu 390	Ala	Phe	Ile	Lys	Ala 395	Glu	Ile	Val	Glu	Lys 400	
Val	Leu	Lys	Thr	Ser	Val	Glu	Ala	Leu	Val 410	Glu	Leu	Asn	Thr	Leu	Lys 415	
Asn	Leu	Val	Gly	Ser	Ala	Met	Ala	Gly 425	Ser	Leu	Gly	Gly	Phe	Asn	Ala 430	
His	Ser	Ser	Asn	Ile	Val	Ser	Ala 440	Val	Phe	Ile	Ala	Thr	Gly	Gln	Asp 445	
Pro	Ala	Gln	Asn	Val	Glu	Ser	Ser	His	Cys	Met	Thr	Met	Ile	Leu	Pro 450	

Asp Gly Asp Asp Leu His Ile Ser Val Ser Met Pro Cys Ile Glu Val  
 465 470 475 480

Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ala Ala Cys Leu  
 485 490 495

Asn Leu Leu Gly Val Lys Gly Ser Asn Asn Glu Lys Pro Gly Ser Asn  
 500 505 510

Ala Gln Gln Leu Ala Arg Ile Val Ala Gly Ser Val Leu Ala Gly Glu  
 515 520 525

Leu Ser Leu Met Ser Ala Ile Ala Ala Gly Gln Leu Val Lys Ser His  
 530 535 540

Met Lys Tyr Asn Arg Ser Ser Arg Asp Ile Gly Pro Ser Ser Gln Val  
 545 550 555 560

Asn Arg

<210> 216  
 <211> 224  
 <212> PRT  
 <213> Mus musculus

<400> 216

Glu Lys Ala Leu Leu Lys Leu Gln Glu Phe Phe Pro Asp Met Gln Ile  
 1 5 10 15

Leu Ala Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala Ile  
 20 25 30

Asn Trp Ile Glu Gly Arg Gly Lys Thr Val Val Cys Glu Ala Val Ile  
 35 40 45

Pro Ala Lys Val Val Arg Glu Val Leu Lys Thr Thr Thr Glu Ala Met  
 50 55 60

Val Asp Val Asn Ile Asn Lys Asn Leu Val Gly Ser Ala Met Ala Gly  
 65 70 75 80

Ser Ile Gly Gly Tyr Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile  
 85 90 95

Tyr Ile Ala Cys Gly Gln Asp Ala Ala Gln Asn Val Gly Ser Ser Asn  
100 105 110

Cys Ile Thr Leu Met Glu Ala Ser Gly Pro Thr Asn Glu Asp Leu Tyr  
115 120 125

Ile Ser Cys Thr Met Pro Ser Ile Glu Ile Gly Thr Val Gly Gly Gly  
130 135 140

Thr Asn Leu Leu Pro Gln Gln Ala Cys Leu Gln Met Leu Gly Val Gln  
145 150 155 160

Gly Ala Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg Gln Leu Ala Arg  
165 170 175

Ile Val Cys Gly Thr Val Met Ala Gly Glu Leu Ser Leu Met Ala Ala  
180 185 190

Leu Ala Ala Gly His Leu Val Arg Ser His Met Val His Asn Arg Ser  
195 200 205

Lys Ile Asn Leu Gln Asp Leu Gln Gly Thr Cys Thr Lys Lys Ala Ala  
210 215 220

<210> 217

<211> 887

<212> PRT

<213> Mesocricetus auratus

<400> 217

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125

Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Ala Leu Ala Lys Phe Ala  
 130 135 140

Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly  
 145 150 155 160

Met Ala Ile Leu Gly Pro Thr Phe Thr Leu Asp Ala Leu Val Glu Cys  
 165 170 175

Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Arg Gln Leu Glu Ile  
 180 185 190

Met Cys Cys Phe Gly Cys Met Ser Val Leu Ala Asn Tyr Phe Val Phe  
 195 200 205

Met Thr Phe Phe Pro Ala Cys Val Ser Leu Val Leu Glu Leu Ser Arg  
 210 215 220

Glu Ser Arg Glu Gly Arg Pro Ile Trp Gln Leu Ser His Phe Ala Arg  
 225 230 235 240

Val Leu Glu Glu Glu Glu Asn Lys Pro Asn Pro Val Thr Gln Arg Val  
 245 250 255

Lys Met Ile Met Ser Leu Gly Leu Val Leu Val His Ala His Ser Arg  
 260 265 270

Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Thr Glu His Ser Lys  
 275 280 285

Val Ser Leu Gly Leu Asp Glu Asp Val Ser Lys Arg Ile Glu Pro Ser  
 290 295 300

Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile  
 305 310 315 320

Glu Gln Val Val Thr Leu Ser Leu Ala Phe Leu Leu Ala Val Lys Tyr  
 325 330 335

Ile Phe Phe Glu Gln Ala Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn  
 340 345 350

Pro Ile Thr Ser Pro Val Ala Thr Pro Lys Lys Ala Pro Asp Asn Cys  
 355 360 365

Cys Arg Arg Glu Pro Val Leu Ser Arg Arg Asn Glu Lys Leu Ser Ser  
 370 375 380

Val Glu Glu Glu Pro Gly Val Asn Gln Asp Arg Lys Val Glu Val Ile  
 385 390 395 400

Lys Pro Leu Val Ala Glu Thr Glu Ser Thr Ser Arg Ala Thr Phe Val  
 405 410 415

Leu Gly Ala Ser Gly Gly Cys Ser Pro Val Ala Leu Gly Thr Gln Glu  
 420 425 430

Pro Glu Ile Glu Leu Pro Ser Glu Pro Arg Pro Asn Glu Glu Cys Leu  
 435 440 445

Gln Ile Leu Glu Ser Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp Ala  
 450 455 460

Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys Leu  
 465 470 475 480

Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg Gln  
 485 490 495

Leu Leu Ser Thr Lys Leu Pro Glu Pro Ser Ser Leu Gln Tyr Leu Pro  
 500 505 510

Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu Asn  
 515 520 525

Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu Cys  
 530 535 540

Leu Asp Gly Lys Glu Tyr Gln Val Pro Met Ala Thr Thr Glu Gly Cys  
 545 550 555 560

Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly Gly  
 565 570 575

Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro Val  
 580 585 590  
 Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp Leu  
 595 600 605  
 Glu Thr Pro Glu Gly Phe Ala Val Ile Lys Asp Ala Phe Asp Ser Thr  
 610 615 620  
 Ser Arg Phe Ala Arg Leu Gln Lys Leu His Val Thr Met Ala Gly Arg  
 625 630 635 640  
 Asn Leu Tyr Ile Arg Phe Gln Ser Lys Thr Gly Asp Ala Met Gly Met  
 645 650 655  
 Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Val Lys Leu Gln Glu  
 660 665 670  
 Phe Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr  
 675 680 685  
 Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Thr  
 690 695 700  
 Val Val Cys Glu Ala Val Ile Pro Ala Arg Val Val Arg Glu Val Leu  
 705 710 715 720  
 Lys Thr Thr Thr Glu Ala Met Ile Asp Val Asn Ile Asn Lys Asn Leu  
 725 730 735  
 Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala  
 740 745 750  
 Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala Ala  
 755 760 765  
 Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly  
 770 775 780  
 Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile Glu  
 785 790 795 800  
 Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys  
 805 810 815  
 Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu



	820		825		830										
Asn	Ala	Arg	Gln	Leu	Ala	Arg	Ile	Val	Cys	Gly	Thr	Val	Met	Ala	Gly
		835					840					845			
Glu	Leu	Ser	Leu	Met	Ala	Ala	Leu	Ala	Ala	Gly	His	Leu	Val	Arg	Ser
	850					855					860				
His	Met	Val	His	Asn	Arg	Ser	Lys	Ile	Asn	Leu	Gln	Asp	Leu	Gln	Gly
865					870					875					880
Thr	Cys	Thr	Lys	Lys	Ala	Ala									
				885											

<210> 218  
 <211> 1045  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*  
 <400> 218

Met	Ser	Leu	Pro	Leu	Lys	Thr	Ile	Val	His	Leu	Val	Lys	Pro	Phe	Ala
1				5					10					15	
Cys	Thr	Ala	Arg	Phe	Ser	Ala	Arg	Tyr	Pro	Ile	His	Val	Ile	Val	Val
			20					25					30		
Ala	Val	Leu	Leu	Ser	Ala	Ala	Ala	Tyr	Leu	Ser	Val	Thr	Gln	Ser	Tyr
		35					40					45			
Leu	Asn	Glu	Trp	Lys	Leu	Asp	Ser	Asn	Gln	Tyr	Ser	Thr	Tyr	Leu	Ser
	50					55					60				
Ile	Lys	Pro	Asp	Glu	Leu	Phe	Glu	Lys	Cys	Thr	His	Tyr	Tyr	Arg	Ser
65					70					75					80
Pro	Val	Ser	Asp	Thr	Trp	Lys	Leu	Leu	Ser	Ser	Lys	Glu	Ala	Ala	Asp
				85					90					95	
Ile	Tyr	Thr	Pro	Phe	His	Tyr	Tyr	Leu	Ser	Thr	Ile	Ser	Phe	Gln	Ser
			100					105					110		
Lys	Asp	Asn	Ser	Thr	Thr	Leu	Pro	Ser	Leu	Asp	Asp	Val	Ile	Tyr	Ser
		115					120					125			
Val	Asp	His	Thr	Arg	Tyr	Leu	Leu	Ser	Glu	Glu	Pro	Lys	Ile	Pro	Thr
	130					135					140				

Glu Leu Val Ser Glu Asn Gly Thr Lys Trp Arg Leu Arg Asn Asn Ser  
 145 150 155 160

Asn Phe Ile Leu Asp Leu His Asn Ile Tyr Arg Asn Met Val Lys Gln  
 165 170 175

Phe Ser Asn Lys Thr Ser Glu Phe Asp Gln Phe Asp Leu Phe Ile Ile  
 180 185 190

Leu Ala Ala Tyr Leu Thr Leu Phe Tyr Thr Leu Cys Cys Leu Phe Asn  
 195 200 205

Asp Met Arg Lys Ile Gly Ser Lys Phe Trp Leu Ser Phe Ser Ala Leu  
 210 215 220

Ser Asn Ser Ala Cys Ala Leu Tyr Leu Ser Leu Tyr Thr Thr His Ser  
 225 230 235 240

Leu Leu Lys Lys Pro Ala Ser Leu Leu Ser Leu Val Ile Gly Leu Pro  
 245 250 255

Phe Ile Val Val Ile Ile Gly Phe Lys His Lys Val Arg Leu Ala Ala  
 260 265 270

Phe Ser Leu Gln Lys Phe His Arg Ile Ser Ile Asp Lys Lys Ile Thr  
 275 280 285

Val Ser Asn Ile Ile Tyr Glu Ala Met Phe Gln Glu Gly Ala Tyr Leu  
 290 295 300

Ile Arg Asp Tyr Leu Phe Tyr Ile Ser Ser Phe Ile Gly Cys Ala Ile  
 305 310 315 320

Tyr Ala Arg His Leu Pro Gly Leu Val Asn Phe Cys Ile Leu Ser Thr  
 325 330 335

Phe Met Leu Val Phe Asp Leu Leu Leu Ser Ala Thr Phe Tyr Ser Ala  
 340 345 350

Ile Leu Ser Met Lys Leu Glu Ile Asn Ile Ile His Arg Ser Thr Val  
 355 360 365

Ile Arg Gln Thr Leu Glu Glu Asp Gly Val Val Pro Thr Thr Ala Asp  
 370 375 380

Ile Ile Tyr Lys Asp Glu Thr Ala Ser Glu Pro His Phe Leu Arg Ser  
385 390 395 400

Asn Val Ala Ile Ile Leu Gly Lys Ala Ser Val Ile Gly Leu Leu Leu  
405 410 415

Leu Ile Asn Leu Tyr Val Phe Thr Asp Lys Leu Asn Ala Thr Ile Leu  
420 425 430

Asn Thr Val Tyr Phe Asp Ser Thr Ile Tyr Ser Leu Pro Asn Phe Ile  
435 440 445

Asn Tyr Lys Asp Ile Gly Asn Leu Ser Asn Gln Val Ile Ile Ser Val  
450 455 460

Leu Pro Lys Gln Tyr Tyr Thr Pro Leu Lys Lys Tyr His Gln Ile Glu  
465 470 475 480

Asp Ser Val Leu Leu Ile Ile Asp Ser Val Ser Asn Ala Ile Arg Asp  
485 490 495

Gln Phe Ile Ser Lys Leu Leu Phe Phe Ala Phe Ala Val Ser Ile Ser  
500 505 510

Ile Asn Val Tyr Leu Leu Asn Ala Ala Lys Ile His Thr Gly Tyr Met  
515 520 525

Asn Phe Gln Pro Gln Ser Asn Lys Ile Asp Asp Leu Val Val Gln Gln  
530 535 540

Lys Ser Ala Thr Ile Glu Phe Ser Glu Thr Arg Ser Met Pro Ala Ser  
545 550 555 560

Ser Gly Leu Glu Thr Pro Val Thr Ala Lys Asp Ile Ile Ile Ser Glu  
565 570 575

Glu Ile Gln Asn Asn Glu Cys Val Tyr Ala Leu Ser Ser Gln Asp Glu  
580 585 590

Pro Ile Arg Pro Leu Ser Asn Leu Val Glu Leu Met Glu Lys Glu Gln  
595 600 605

Leu Lys Asn Met Asn Asn Thr Glu Val Ser Asn Leu Val Val Asn Gly  
610 615 620

Lys Leu Pro Leu Tyr Ser Leu Glu Lys Lys Leu Glu Asp Thr Thr Arg

625		630		635		640
Ala Val Leu Val Arg Arg Lys Ala Leu Ser Thr Leu Ala Glu Ser Pro						
		645		650		655
Ile Leu Val Ser Glu Lys Leu Pro Phe Arg Asn Tyr Asp Tyr Asp Arg						
		660		665		670
Val Phe Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro						
		675		680		685
Val Gly Val Ile Gly Pro Leu Ile Ile Asp Gly Thr Ser Tyr His Ile						
		690		695		700
Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Ala Met Arg Gly						
705		710		715		720
Cys Lys Ala Ile Asn Ala Gly Gly Gly Ala Thr Thr Val Leu Thr Lys						
		725		730		735
Asp Gly Met Thr Arg Gly Pro Val Val Arg Phe Pro Thr Leu Ile Arg						
		740		745		750
Ser Gly Ala Cys Lys Ile Trp Leu Asp Ser Glu Glu Gly Gln Asn Ser						
		755		760		765
Ile Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala Arg Leu Gln His						
		770		775		780
Ile Gln Thr Cys Leu Ala Gly Asp Leu Leu Phe Met Arg Phe Arg Thr						
785		790		795		800
Thr Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser Lys Gly Val Glu						
		805		810		815
Tyr Ser Leu Lys Gln Met Val Glu Glu Tyr Gly Trp Glu Asp Met Glu						
		820		825		830
Val Val Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala						
		835		840		845
Ile Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Ala Glu Ala Thr						
		850		855		860
Ile Pro Gly Asp Val Val Lys Ser Val Leu Lys Ser Asp Val Ser Ala						
865		870		875		880

Leu Val Glu Leu Asn Ile Ser Lys Asn Leu Val Gly Ser Ala Met Ala  
885 890 895

Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn Leu Val Thr Ala  
900 905 910

Leu Phe Leu Ala Leu Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser  
915 920 925

Asn Cys Ile Thr Leu Met Lys Glu Val Asp Gly Asp Leu Arg Ile Ser  
930 935 940

Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile Gly Gly Gly Thr Val  
945 950 955 960

Leu Glu Pro Gln Gly Ala Met Leu Asp Leu Leu Gly Val Arg Gly Pro  
965 970 975

His Pro Thr Glu Pro Gly Ala Asn Ala Arg Gln Leu Ala Arg Ile Ile  
980 985 990

Ala Cys Ala Val Leu Ala Gly Glu Leu Ser Leu Cys Ser Ala Leu Ala  
995 1000 1005

Ala Gly His Leu Val Gln Ser His Met Thr His Asn Arg Lys Thr  
1010 1015 1020

Asn Lys Ala Asn Glu Leu Pro Gln Pro Ser Asn Lys Gly Pro Pro  
1025 1030 1035

Cys Lys Thr Ser Ala Leu Leu  
1040 1045

<210> 219  
<211> 592  
<212> PRT  
<213> Arabidopsis thaliana

<400> 219

Met Asp Leu Arg Arg Arg Pro Pro Lys Pro Pro Val Thr Asn Asn Asn  
1 5 10 15

Asn Ser Asn Gly Ser Phe Arg Ser Tyr Gln Pro Arg Thr Ser Asp Asp  
20 25 30

Asp His Arg Arg Arg Ala Thr Thr Ile Ala Pro Pro Pro Lys Ala Ser  
 35 40 45  
 Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr  
 50 55 60  
 Leu Phe Phe Ser Val Ala Tyr Tyr Leu Leu His Arg Trp Arg Asp Lys  
 65 70 75 80  
 Ile Arg Tyr Asn Thr Pro Leu His Val Val Thr Ile Thr Glu Leu Gly  
 85 90 95  
 Ala Ile Ile Ala Leu Ile Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe  
 100 105 110  
 Gly Ile Asp Phe Val Gln Ser Phe Ile Ser Arg Ala Ser Gly Asp Ala  
 115 120 125  
 Trp Asp Leu Ala Asp Thr Ile Asp Asp Asp Asp His Arg Leu Val Thr  
 130 135 140  
 Cys Ser Pro Pro Thr Pro Ile Val Ser Val Ala Lys Leu Pro Asn Pro  
 145 150 155 160  
 Glu Pro Ile Val Thr Glu Ser Leu Pro Glu Glu Asp Glu Glu Ile Val  
 165 170 175  
 Lys Ser Val Ile Asp Gly Val Ile Pro Ser Tyr Ser Leu Glu Ser Arg  
 180 185 190  
 Leu Gly Asp Cys Lys Arg Ala Ala Ser Ile Arg Arg Glu Ala Leu Gln  
 195 200 205  
 Arg Val Thr Gly Arg Ser Ile Glu Gly Leu Pro Leu Asp Gly Phe Asp  
 210 215 220  
 Tyr Glu Ser Ile Leu Gly Gln Cys Cys Glu Met Pro Val Gly Tyr Ile  
 225 230 235 240  
 Gln Ile Pro Val Gly Ile Ala Gly Pro Leu Leu Leu Asp Gly Tyr Glu  
 245 250 255  
 Tyr Ser Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr  
 260 265 270  
 Asn Arg Gly Cys Lys Ala Met Phe Ile Ser Gly Gly Ala Thr Ser Thr

275					280					285					
Val	Leu	Lys	Asp	Gly	Met	Thr	Arg	Ala	Pro	Val	Val	Arg	Phe	Ala	Ser
290						295					300				
Ala	Arg	Arg	Ala	Ser	Glu	Leu	Lys	Phe	Phe	Leu	Glu	Asn	Pro	Glu	Asn
305					310					315					320
Phe	Asp	Thr	Leu	Ala	Val	Val	Phe	Asn	Arg	Ser	Ser	Arg	Phe	Ala	Arg
				325					330					335	
Leu	Gln	Ser	Val	Lys	Cys	Thr	Ile	Ala	Gly	Lys	Asn	Ala	Tyr	Val	Arg
			340					345					350		
Phe	Cys	Cys	Ser	Thr	Gly	Asp	Ala	Met	Gly	Met	Asn	Met	Val	Ser	Lys
		355					360					365			
Gly	Val	Gln	Asn	Val	Leu	Glu	Tyr	Leu	Thr	Asp	Asp	Phe	Pro	Asp	Met
	370					375					380				
Asp	Val	Ile	Gly	Ile	Ser	Gly	Asn	Phe	Cys	Ser	Asp	Lys	Lys	Pro	Ala
385					390					395					400
Ala	Val	Asn	Trp	Ile	Glu	Gly	Arg	Gly	Lys	Ser	Val	Val	Cys	Glu	Ala
				405					410					415	
Val	Ile	Arg	Gly	Glu	Ile	Val	Asn	Lys	Val	Leu	Lys	Thr	Ser	Val	Ala
			420					425					430		
Ala	Leu	Val	Glu	Leu	Asn	Met	Leu	Lys	Asn	Leu	Ala	Gly	Ser	Ala	Val
		435					440					445			
Ala	Gly	Ser	Leu	Gly	Gly	Phe	Asn	Ala	His	Ala	Ser	Asn	Ile	Val	Ser
	450					455					460				
Ala	Val	Phe	Ile	Ala	Thr	Gly	Gln	Asp	Pro	Ala	Gln	Asn	Val	Glu	Ser
465					470					475					480
Ser	Gln	Cys	Ile	Thr	Met	Met	Glu	Ala	Ile	Asn	Asp	Gly	Lys	Asp	Ile
				485					490					495	
His	Ile	Ser	Val	Thr	Met	Pro	Ser	Ile	Glu	Val	Gly	Thr	Val	Gly	Gly
			500					505					510		
Gly	Thr	Gln	Leu	Ala	Ser	Gln	Ser	Ala	Cys	Leu	Asn	Leu	Leu	Gly	Val
		515					520					525			

Lys Gly Ala Ser Thr Glu Ser Pro Gly Met Asn Ala Arg Arg Leu Ala  
530 535 540

Thr Ile Val Ala Gly Ala Val Leu Ala Gly Glu Leu Ser Leu Met Ser  
545 550 555 560

Ala Ile Ala Ala Gly Gln Leu Val Arg Ser His Met Lys Tyr Asn Arg  
565 570 575

Ser Ser Arg Asp Ile Ser Gly Ala Thr Thr Thr Thr Thr Thr Thr Thr  
580 585 590

<210> 220

<211> 932

<212> PRT

<213> Strongylocentrotus purpuratus

<400> 220

Met Leu Ser Arg Leu Phe Leu Ala Gln Gly Arg Phe Cys Ser Ser His  
1 5 10 15

Pro Trp Glu Val Ile Val Cys Thr Leu Thr Leu Thr Ile Cys Met Leu  
20 25 30

Ser Met Asn Tyr Phe Thr Gly Leu Pro Arg Ile Cys Gly Trp Asn Tyr  
35 40 45

Glu Cys Ala Pro Gln Val Lys Glu Ser Ser Leu Ser Ser Asp Val Leu  
50 55 60

Val Met Cys Ile Met Arg Thr Leu Ala Val Ala Tyr Leu Tyr Leu Gln  
65 70 75 80

Phe Thr Lys Leu Arg Thr Thr Gly Ser Lys Tyr Ile Leu Gly Ile Ala  
85 90 95

Gly Leu Phe Thr Ile Phe Ser Ser Phe Leu Phe Ser Ser Ala Val Ile  
100 105 110

His Leu Phe Gly Leu Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe  
115 120 125

Phe Leu Leu Leu Ile Asp Leu Thr Lys Ala Ser Ala Leu Thr Lys Phe  
130 135 140



Ala Leu Ser Ser Thr Thr Gln Asn Glu Val Val Asp Asn Ile Ala Arg  
 145 150 155 160

Gly Met Ala Ile Leu Gly Pro Thr Ile Thr Leu Asp Thr Val Val Thr  
 165 170 175

Thr Leu Val Ile Ser Ile Gly Thr Met Ser Ser Ile Arg Lys Met Glu  
 180 185 190

Val Phe Cys Cys Phe Gly Ile Leu Ser Leu Ile Ala Asn Tyr Phe Val  
 195 200 205

Phe Met Thr Phe Phe Pro Ala Cys Leu Ser Leu Val Leu Glu Leu Ser  
 210 215 220

Asn Ser Asn Lys Tyr Gly Arg Pro Val Trp His Leu Gly Arg Phe Ala  
 225 230 235 240

Glu Val Leu Glu Glu Glu Glu Asp Arg Lys Pro Asn Pro Val Val Gln  
 245 250 255

Arg Val Lys Met Ile Met Arg Thr Gly Leu Val Leu Val His Ala His  
 260 265 270

Ser Tyr Trp Leu Ala Ser Asn Asp Thr Glu Leu Met Ser Arg Asp Met  
 275 280 285

Leu Tyr Asp Gly Asn Leu Leu Thr Asp Lys Lys Ile Asp Pro Thr Met  
 290 295 300

Pro Leu Trp Glu Phe Tyr Ala Thr Arg Leu Trp Pro Pro Thr Leu Asp  
 305 310 315 320

Tyr Ile Leu Thr Ala Ile Leu Ala Thr Val Leu Ala Ser His Tyr Ile  
 325 330 335

Phe Phe Ser Asp Leu Ala Thr Tyr Pro Glu Lys Arg Val Ser Ile Met  
 340 345 350

Glu Gly His Glu Val Val Asn Pro Gly Ser Asp His Glu Asp Ala Ser  
 355 360 365

Glu Val Glu Thr Ile Gly Thr Leu Ser Ser Ser Pro Ser Thr Ser Asp  
 370 375 380

Val Arg Val Ile Glu Ser Met Thr Ser Arg Thr Gln Ala Cys Gln Thr

385		390		395		400									
Asp	Pro	Val	Thr	Ala	Ser	Pro	Arg	Asn	Ser	Arg	Ser	Ser	Ser	Pro	Val
				405					410					415	
Ser	Ser	His	Ser	Val	Lys	Pro	Ala	Arg	Phe	Thr	Ile	Gly	Ser	Ser	Gly
			420					425					430		
Ser	Gly	Ser	Glu	Asp	Glu	Glu	Glu	Glu	Val	Ile	Lys	Glu	Glu	Glu	Val
		435					440					445			
Glu	Trp	Val	Leu	Glu	Thr	Glu	Leu	Lys	Ala	Pro	Arg	Pro	Met	Pro	Glu
	450					455					460				
Leu	Leu	Glu	Ile	Leu	Asn	Val	Gly	Lys	Gly	Pro	Asn	Ala	Leu	Thr	Asp
465					470					475					480
Asp	Glu	Val	Gln	Leu	Leu	Val	Gly	Ala	Lys	His	Ile	Pro	Ala	Tyr	Lys
			485						490					495	
Leu	Glu	Asn	Ile	Leu	Asp	Asn	Pro	Glu	Arg	Gly	Val	Ala	Val	Arg	Arg
			500					505					510		
Gln	Ile	Ile	Ser	Lys	Leu	Leu	Pro	Ile	Thr	Asp	Ala	Leu	Glu	Lys	Leu
		515					520					525			
Pro	Tyr	Ala	Ser	Tyr	Asp	Tyr	Ser	Phe	Val	Ser	Gly	Ala	Cys	Cys	Glu
	530					535					540				
Asn	Val	Ile	Gly	Tyr	Met	Pro	Val	Pro	Val	Gly	Val	Ala	Gly	Pro	Leu
545					550					555					560
Leu	Leu	Asp	Gly	Gln	Glu	Phe	Gln	Val	Pro	Met	Ala	Thr	Thr	Glu	Gly
			565					570						575	
Cys	Leu	Val	Ala	Ser	Thr	Asn	Arg	Gly	Cys	Arg	Ala	Leu	Arg	Ser	Ala
			580					585					590		
Gly	Gly	Ile	His	Ser	Val	Leu	Ile	Gly	Asp	Gly	Met	Thr	Arg	Gly	Pro
		595					600					605			
Leu	Val	Arg	Leu	Pro	Ser	Ala	Gln	Glu	Ala	Gly	Ala	Ile	Lys	Gln	Trp
	610					615					620				
Leu	Glu	Val	Pro	Glu	Asn	Phe	Ala	Ala	Ile	Lys	Glu	Arg	Phe	Glu	Ser
625					630					635					640

Thr Ser Arg Phe Ala Lys Leu Lys Ser Ile Gln Thr Ala Leu Ala Gly  
645 650 655

Arg Tyr Met Phe Leu Arg Phe Lys Ala Leu Thr Gly Asp Ala Met Gly  
660 665 670

Met Asn Met Ile Ser Lys Gly Thr Glu Gln Ala Leu His Ala Leu Gln  
675 680 685

Thr Met Phe Pro Asn Ile Glu Ile Met Ser Leu Ser Gly Asn Tyr Cys  
690 695 700

Thr Asp Lys Lys Val Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys  
705 710 715 720

Ser Val Val Cys Glu Ala Thr Val Pro Ala His Ile Val Gln Gln Val  
725 730 735

Leu Lys Thr Ser Ala Ser Ala Leu Val Asp Leu Asn Ile His Lys Asn  
740 745 750

Leu Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Phe Asn Ala His  
755 760 765

Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Thr Gly Gln Asp Ala  
770 775 780

Ala Gln Asn Ile Ala Ser Ser Asn Cys Met Thr Leu Met Glu Thr Arg  
785 790 795 800

Gly Pro Lys Gly Gly Asp Leu Tyr Leu Ser Cys Thr Met Pro Ser Ile  
805 810 815

Glu Leu Gly Thr Val Gly Gly Gly Thr Val Leu Pro Pro Gln Ser Ala  
820 825 830

Cys Leu Gln Met Met Asp Val Lys Gly Ser Asn Ile His Gly Ser Gly  
835 840 845

Leu Asn Ala Ser Gln Leu Ala Arg Ile Val Cys Ala Thr Val Met Ala  
850 855 860

Gly Glu Leu Ser Leu Met Ser Ala Leu Ala Ala Gly His Leu Val Lys  
865 870 875 880

Ser His Met Lys His Asn Arg Ser Ala Leu Asn Ile Ala Ser Pro Leu  
885 890 895

Pro Ser Ile Asp Glu Val Ala Thr His Arg Arg Ser Lys Ser Val Asp  
900 905 910

Phe Ser Ala Leu Lys Glu Ser Ser Ala Ala Ala Pro Gly Thr Cys Thr  
915 920 925

Ala Asn Ala Ser  
930

<210> 221  
<211> 948  
<212> PRT  
<213> Schistosoma mansoni

<400> 221

Met Leu Lys Ile Leu Asn Thr Val Leu Leu Phe Phe Asp Cys Phe Ser  
1 5 10 15

Thr Gly Thr Phe Phe Val Leu Leu Ile Tyr Leu Phe Thr Arg Leu Arg  
20 25 30

Thr His Leu Leu His Phe Ser Ser Ser Asn Cys His Leu Asp Val Ile  
35 40 45

Ile Tyr Gln Ser Arg Ala Val Ile Ile Phe Leu Val Val Phe Val Tyr  
50 55 60

Phe Ile Gly Val Leu Thr Cys Lys Ile Asn Asp Lys Ile Leu Val His  
65 70 75 80

Thr Met Leu Arg Asn Lys Arg Gln Leu Asn Thr Leu Phe Tyr Thr Leu  
85 90 95

Ile Leu Phe Thr Phe Ala Leu Cys Ser Leu Ser Ser Val Leu Phe Val  
100 105 110

Pro Tyr Thr Ser Phe Ala Ile Phe Leu Leu Ser Thr Ser Val Phe Leu  
115 120 125

Leu Phe Ser Asp Leu Ser Val Phe Phe Ile Val Leu Glu Tyr Tyr Leu  
130 135 140

Leu Glu Ile Glu Leu Val Asn Tyr Glu His Ala Lys Arg His Cys Leu

145		150		155		160
Leu Ser His Leu Phe Ser Asn Gln Leu Phe Val Asp His Met Leu Gly	165	170	175			
Met Phe Leu Lys Thr Ser Leu Phe Ser Ile Ser Thr Thr Ser Lys Tyr	180	185	190			
Ala Tyr Leu Glu Ser Ile Phe Lys Cys Thr Leu Met Glu Gln Ile Ile	195	200	205			
Tyr Ile Met Ile Val Phe Val Phe Leu Pro Ser Phe Met Arg Ile Phe	210	215	220			
Ala Ser Tyr Ala Lys Arg Met Tyr Gly Glu Gln Lys Lys Cys Leu Val	225	230	235			240
Ser Asn Lys Gly Val Ser Ser Ser Thr Arg Lys Arg Arg His Ser Tyr	245	250	255			
Ser Ser Gly His Ser Tyr Val Glu Tyr Arg Arg Met Ser Val His Asn	260	265	270			
Leu Ile Gly Tyr Val Val Asn Pro Asn Cys His Tyr Lys Cys Trp Ser	275	280	285			
Thr Thr Phe Val Ile Phe Val Ser Leu Ile Ile Leu His Leu Asn Asn	290	295	300			
Arg Tyr Ser Glu Arg Ile Ser Ser Phe Lys His Asn Ser Ser Glu Asn	305	310	315			320
Glu Val Phe Pro Val Leu Tyr His Ile Thr Ala Tyr Glu Val Thr Ser	325	330	335			
Ile Phe His Phe Ile Tyr Asn Ile Phe His Val Ile Asn Ala Asn Leu	340	345	350			
Val Val Tyr Leu Phe Leu Gly Leu Phe Leu Phe Lys Arg Ile Arg Leu	355	360	365			
Asn Lys Pro Ile Asn Ser Gln Leu Arg Asn Leu Asn Ile Pro Lys Ile	370	375	380			
Lys Glu Thr Leu Ile Ser Asp Gln Val Lys Gln Ser Pro Val Leu Pro	385	390	395			400

Lys Phe Ser Lys Lys Leu Asn Asp Ile Pro Leu Gln Ser Arg Lys Arg  
405 410 415

Ile Tyr Cys Leu His Lys Asp Asp Asp Tyr Ile Asp Arg Asn Asp Ser  
420 425 430

Ser Ser Val Ser Thr Phe Ser Asn Thr Cys Lys Asn Ser Asn Glu Arg  
435 440 445

Pro Ser Asn Val Leu Asp Leu Asp Met Leu Thr Glu Lys Ile Lys Gln  
450 455 460

Gly Leu Gly His Glu Leu Ser Asp Thr Glu Ile Leu Gln Leu Leu Ser  
465 470 475 480

His Gly Arg Leu Lys Thr Arg Glu Leu Glu Ser Val Val Arg Asn Pro  
485 490 495

Phe Arg Ala Val Glu Leu Arg Arg Leu Asp Leu Ser Thr Phe Leu Asn  
500 505 510

Asn Pro His Ile Ile Glu Arg Ile Pro Tyr Lys Asp Tyr Asp Tyr Arg  
515 520 525

Leu Val Tyr Gly Gln Cys Cys Glu Glu Val Ile Gly Tyr Met Pro Ile  
530 535 540

Pro Val Gly Lys Ile Gly Pro Leu Leu Leu Asp Gly Arg Ser His Tyr  
545 550 555 560

Ile Pro Leu Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg  
565 570 575

Gly Cys Arg Ala Ile Phe Leu Ala Gly Gly Ile Lys Ser Val Val Tyr  
580 585 590

Arg Asp Gln Met Thr Arg Ala Pro Val Val Trp Phe Pro Ser Ile Ile  
595 600 605

Asp Ser Val Lys Cys Ile Ala Trp Ile Asp Ser Glu Glu Gly Phe Gln  
610 615 620

Thr Leu Lys Ser Ala Phe Asp Lys Thr Ser Ala His Val Asn Leu Leu  
625 630 635 640

Ser Val Phe Ala Cys Pro Ala Gly Arg Tyr Ile His Ile Arg Phe Ala  
645 650 655

Ala Arg Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Ala Thr  
660 665 670

Asp Ser Ala Leu His Cys Leu Lys Lys Tyr Phe Ser Asn Met Gln Val  
675 680 685

Ile Ser Leu Ser Gly Asn Met Cys Thr Asp Lys Lys Pro Ala Thr Ile  
690 695 700

Asn Thr Ile Leu Gly Arg Gly Lys Ser Val Ile Ala Glu Ala His Leu  
705 710 715 720

Ser Ala Asp Val Leu Ala Gln Val Leu His Thr Asn Ala Gln Arg Leu  
725 730 735

Ala Arg Leu Thr His Ser Lys Asn Trp Ile Gly Ser Ala Met Ala Gly  
740 745 750

Cys Pro Gly Met Met Gly Cys Asn Ala His Ala Ala Asn Ile Ile Ala  
755 760 765

Gly Met Phe Ala Ala Thr Gly Gln Asp Leu Ala Gln Val Val Asp Ser  
770 775 780

Ser Ser Cys Leu Thr Gln Leu Glu Val Asp Leu Ser Asp Asp Ser Leu  
785 790 795 800

Val Ala Ser Val Thr Met Pro Cys Leu Glu Val Gly Thr Val Gly Gly  
805 810 815

Gly Thr Arg Leu Ser Gly Gln Arg Ala Cys Leu Asp Leu Leu Asp Leu  
820 825 830

Ser Val Asp Arg Pro Thr Glu His Leu Ser Arg Ile Ile Ala Gly Thr  
835 840 845

Val Leu Ala Ala Glu Leu Ser Leu Met Ala Ala Leu Asp Thr Asp Asp  
850 855 860

Leu Val Lys Ala His Met His Phe Asn Arg Ala Lys Gln Ser Thr Asn  
865 870 875 880

Ser His Ser Cys Ser His Ser Thr Thr Thr Asp Asn Asn Asp Asn Ile  
885 890 895

Ser Asn Ile Tyr Asp Asn His Asn Val Ala Leu Ser Ser Lys Ile Pro  
900 905 910

Val Thr Asp Asn Ser Asp Ile Arg Glu Ser Val His Ser Leu His Val  
915 920 925

Lys Pro Phe Pro Val Lys Ser Asp Leu Ser Val Asn Pro Glu Ile Ser  
930 935 940

His Tyr Thr Met  
945

<210> 222  
<211> 44  
<212> PRT  
<213> Pseudomonas mevalonii

<400> 222

His Ala Arg Asn Ile Ala Val Val Ala Gly Ala Arg Gly Asp Glu Val  
1 5 10 15

Asp Trp Val Ala Arg Gln Leu Val Glu Tyr His Asp Val Arg Ala Asp  
20 25 30

Arg Ala Val Ala Val Leu Lys Gln Lys Arg Gly Gln  
35 40

<210> 223  
<211> 428  
<212> PRT  
<213> Pseudomonas mevalonii

<400> 223

Met Ser Leu Asp Ser Arg Leu Pro Ala Phe Arg Asn Leu Ser Pro Ala  
1 5 10 15

Ala Arg Leu Asp His Ile Gly Gln Leu Leu Gly Leu Ser His Asp Asp  
20 25 30

Val Ser Leu Leu Ala Asn Ala Gly Ala Leu Pro Met Asp Ile Ala Asn  
35 40 45

Gly Met Ile Glu Asn Val Ile Gly Thr Phe Glu Leu Pro Tyr Ala Val  
50 55 60



Ala Ser Asn Phe Gln Ile Asn Gly Arg Asp Val Leu Val Pro Leu Val  
65 70 75 80

Val Glu Glu Pro Ser Ile Val Ala Ala Ala Ser Tyr Met Ala Lys Leu  
85 90 95

Ala Arg Ala Asn Gly Gly Phe Thr Thr Ser Ser Ser Ala Pro Leu Met  
100 105 110

His Ala Gln Val Gln Ile Val Gly Ile Gln Asp Pro Leu Asn Ala Arg  
115 120 125

Leu Ser Leu Leu Arg Arg Lys Asp Glu Ile Ile Glu Leu Ala Asn Arg  
130 135 140

Lys Asp Gln Leu Leu Asn Ser Leu Gly Gly Gly Cys Arg Asp Ile Glu  
145 150 155 160

Val His Thr Phe Ala Asp Thr Pro Arg Gly Pro Met Leu Val Ala His  
165 170 175

Leu Ile Val Asp Val Arg Asp Ala Met Gly Ala Asn Thr Val Asn Thr  
180 185 190

Met Ala Glu Ala Val Ala Pro Leu Met Glu Ala Ile Thr Gly Gly Gln  
195 200 205

Val Arg Leu Arg Ile Leu Ser Asn Leu Ala Asp Leu Arg Leu Ala Arg  
210 215 220

Ala Gln Val Arg Ile Thr Pro Gln Gln Leu Glu Thr Ala Glu Phe Ser  
225 230 235 240

Gly Glu Ala Val Ile Glu Gly Ile Leu Asp Ala Tyr Ala Phe Ala Ala  
245 250 255

Val Asp Pro Tyr Arg Ala Ala Thr His Asn Lys Gly Ile Met Asn Gly  
260 265 270

Ile Asp Pro Leu Ile Val Ala Thr Gly Asn Asp Trp Arg Ala Val Glu  
275 280 285

Ala Gly Ala His Ala Tyr Ala Cys Arg Ser Gly His Tyr Gly Ser Leu  
290 295 300

Thr Thr Trp Glu Lys Asp Asn Asn Gly His Leu Val Gly Thr Leu Glu  
305 310 315 320

Met Pro Met Pro Val Gly Leu Val Gly Gly Ala Thr Lys Thr His Pro  
325 330 335

Leu Ala Gln Leu Ser Leu Arg Ile Leu Gly Val Lys Thr Ala Gln Ala  
340 345 350

Leu Ala Glu Ile Ala Val Ala Val Gly Leu Ala Gln Asn Leu Gly Ala  
355 360 365

Met Arg Ala Leu Ala Thr Glu Gly Ile Gln Arg Gly His Met Ala Leu  
370 375 380

His Ala Arg Asn Ile Ala Val Val Ala Gly Ala Arg Gly Asp Glu Val  
385 390 395 400

Asp Trp Val Ala Arg Gln Leu Val Glu Tyr His Asp Val Arg Ala Asp  
405 410 415

Arg Ala Val Ala Leu Leu Lys Gln Lys Arg Gly Gln  
420 425

<210> 224

<211> 562

<212> PRT

<213> Arabidopsis thaliana

<400> 224

Met Glu Asp Leu Arg Arg Arg Phe Pro Thr Lys Lys Asn Gly Glu Glu  
1 5 10 15

Ile Ser Asn Val Ala Val Asp Pro Pro Leu Arg Lys Ala Ser Asp Ala  
20 25 30

Leu Pro Leu Pro Leu Tyr Leu Thr Asn Thr Phe Phe Leu Ser Leu Phe  
35 40 45

Phe Ala Thr Val Tyr Phe Leu Leu Ser Arg Trp Arg Glu Lys Ile Arg  
50 55 60

Asn Ser Thr Pro Leu His Val Val Asp Leu Ser Glu Ile Cys Ala Leu  
65 70 75 80

Ile Gly Phe Val Ala Ser Phe Ile Tyr Leu Leu Gly Phe Cys Gly Ile  
85 90 95

Asp Leu Ile Phe Arg Ser Ser Ser Asp Asp Asp Val Trp Val Asn Asp  
100 105 110

Gly Met Ile Pro Cys Asn Gln Ser Leu Asp Cys Arg Glu Val Leu Pro  
115 120 125

Ile Lys Pro Asn Ser Val Asp Pro Pro Arg Glu Ser Glu Leu Asp Ser  
130 135 140

Val Glu Asp Glu Glu Ile Val Lys Leu Val Ile Asp Gly Thr Ile Pro  
145 150 155 160

Ser Tyr Ser Leu Glu Thr Lys Leu Gly Asp Cys Lys Arg Ala Ala Ala  
165 170 175

Ile Arg Arg Glu Ala Val Gln Arg Ile Thr Gly Lys Ser Leu Thr Gly  
180 185 190

Leu Pro Leu Glu Gly Phe Asp Tyr Asn Ser Ile Leu Gly Gln Cys Cys  
195 200 205

Glu Met Pro Val Gly Tyr Val Gln Ile Pro Val Gly Ile Ala Gly Pro  
210 215 220

Leu Leu Leu Asp Gly Val Glu Tyr Ser Val Pro Met Ala Thr Thr Glu  
225 230 235 240

Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Phe Lys Ala Ile His Leu  
245 250 255

Ser Gly Gly Ala Phe Ser Val Leu Val Lys Asp Ala Met Thr Arg Ala  
260 265 270

Pro Val Val Arg Phe Pro Ser Ala Arg Arg Ala Ala Leu Val Met Phe  
275 280 285

Tyr Leu Gln Asp Pro Ser Asn Phe Glu Arg Leu Ser Leu Ile Phe Asn  
290 295 300

Lys Ser Ser Arg Phe Ala Arg Leu Gln Ser Ile Thr Cys Thr Ile Ala  
305 310 315 320

Gly Arg Asn Leu Tyr Pro Arg Phe Ala Cys Ser Thr Gly Asp Ala Met  
325 330 335

Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val Leu Asp Phe Val  
340 345 350

Lys Ser Glu Phe Pro Asp Met Asp Val Ile Gly Ile Ser Gly Asn Tyr  
355 360 365

Cys Ser Asp Lys Lys Ala Ser Ala Val Asn Trp Ile Glu Gly Arg Gly  
370 375 380

Lys His Val Val Cys Glu Ala Phe Ile Lys Ala Glu Ile Val Glu Lys  
385 390 395 400

Val Leu Lys Thr Ser Val Glu Ala Leu Val Glu Leu Asn Thr Leu Lys  
405 410 415

Asn Leu Val Gly Ser Ala Met Ala Gly Ser Leu Gly Gly Phe Asn Ala  
420 425 430

His Ser Ser Asn Ile Val Ser Ala Val Phe Ile Ala Thr Gly Gln Asp  
435 440 445

Pro Ala Gln Asn Val Glu Ser Ser His Cys Met Thr Met Ile Leu Pro  
450 455 460

Asp Gly Asp Asp Leu His Ile Ser Val Ser Met Pro Cys Ile Glu Val  
465 470 475 480

Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ala Ala Cys Leu  
485 490 495

Asn Leu Leu Gly Val Lys Gly Ser Asn Asn Glu Lys Pro Gly Ser Asn  
500 505 510

Ala Gln Gln Leu Ala Arg Ile Val Ala Gly Ser Val Leu Ala Gly Glu  
515 520 525

Leu Ser Leu Met Ser Ala Ile Ala Ala Gly Gln Leu Val Lys Ser His  
530 535 540

Met Lys Tyr Asn Arg Ser Ser Arg Asp Ile Gly Pro Ser Ser Gln Val  
545 550 555 560

Asn Arg

<210> 225  
 <211> 887  
 <212> PRT  
 <213> Mesocricetus auratus

<400> 225

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
 20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
 35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
 50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
 65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
 85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125

Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Ala Leu Ala Lys Phe Ala  
 130 135 140

Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly  
 145 150 155 160

Met Ala Ile Leu Gly Pro Thr Phe Thr Leu Asp Ala Leu Val Glu Cys  
 165 170 175

Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Arg Gln Leu Glu Ile  
 180 185 190

Met Cys Cys Phe Gly Cys Met Ser Val Leu Ala Asn Tyr Phe Val Phe  
 195 200 205

Met Thr Phe Phe Pro Ala Cys Val Ser Leu Val Leu Glu Leu Ser Arg  
 210 215 220

Glu Ser Arg Glu Gly Arg Pro Ile Trp Gln Leu Ser His Phe Ala Arg  
 225 230 235 240

Val Leu Glu Glu Glu Glu Asn Lys Pro Asn Pro Val Thr Gln Arg Val  
 245 250 255

Lys Met Ile Met Ser Leu Gly Leu Val Leu Val His Ala His Ser Arg  
 260 265 270

Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Thr Glu His Ser Lys  
 275 280 285

Val Ser Leu Gly Leu Asp Glu Asp Val Ser Lys Arg Ile Glu Pro Ser  
 290 295 300

Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile  
 305 310 315 320

Glu Gln Val Val Thr Leu Ser Leu Ala Phe Leu Leu Ala Val Lys Tyr  
 325 330 335

Ile Phe Phe Glu Gln Ala Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn  
 340 345 350

Pro Ile Thr Ser Pro Val Ala Thr Pro Lys Lys Ala Pro Asp Asn Cys  
 355 360 365

Cys Arg Arg Glu Pro Val Leu Ser Arg Arg Asn Glu Lys Leu Ser Ser  
 370 375 380

Val Glu Glu Glu Pro Gly Val Asn Gln Asp Arg Lys Val Glu Val Ile  
 385 390 395 400

Lys Pro Leu Val Ala Glu Thr Glu Ser Thr Ser Arg Ala Thr Phe Val  
 405 410 415

Leu Gly Ala Ser Gly Gly Cys Ser Pro Val Ala Lys Gly Thr Gln Glu  
 420 425 430

Pro Glu Ile Glu Leu Pro Ser Glu Pro Arg Pro Asn Glu Glu Cys Leu  
 435 440 445

Gln Ile Leu Glu Ser Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp Ala  
 450 455 460

Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys Leu  
 465 470 475 480

Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg Gln  
 485 490 495

Leu Leu Ser Thr Lys Leu Pro Glu Pro Ser Ser Leu Gln Tyr Leu Pro  
 500 505 510

Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu Asn  
 515 520 525

Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu Cys  
 530 535 540

Leu Asp Gly Lys Glu Tyr Gln Val Pro Met Ala Thr Thr Glu Gly Cys  
 545 550 555 560

Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly Gly  
 565 570 575

Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro Val  
 580 585 590

Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp Leu  
 595 600 605

Glu Thr Pro Glu Gly Phe Ala Val Ile Lys Asp Ala Phe Asp Ser Thr  
 610 615 620

Ser Arg Phe Ala Arg Leu Gln Lys Leu His Val Thr Met Ala Gly Arg  
 625 630 635 640

Asn Leu Tyr Ile Arg Phe Gln Ser Lys Thr Gly Asp Ala Met Gly Met  
 645 650 655

Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Val Lys Leu Gln Glu  
 660 665 670

Phe Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr  
 675 680 685

Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Thr  
 690 695 700

Val Val Cys Glu Ala Val Ile Pro Ala Arg Val Val Arg Glu Val Leu  
705 710 715 720

Lys Thr Thr Thr Glu Ala Met Ile Asp Val Asn Ile Asn Lys Asn Leu  
725 730 735

Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala  
740 745 750

Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala Ala  
755 760 765

Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly  
770 775 780

Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile Glu  
785 790 795 800

Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys  
805 810 815

Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu  
820 825 830

Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly  
835 840 845

Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Arg Ser  
850 855 860

His Met Val His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly  
865 870 875 880

Thr Cys Thr Lys Lys Ala Ala  
885

<210> 226  
<211> 34  
<212> PRT  
<213> Rattus norvegicus

<400> 226

Val His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Thr Pro Pro Leu  
1 5 10 15

Ala Val Gly Ala Gln Glu Pro Gly Ile Glu Leu Pro Ser Glu Pro Arg  
20 25 30



Pro Asn

<210> 227  
<211> 1053  
<212> PRT  
<213> Schizosaccharomyces pombe

<400> 227

Met Ile Tyr Lys Leu Ala Ala Arg Tyr Pro Ile Gln Val Ile Ala Ile  
1 5 10 15

Val Gly Ile Leu Val Ser Met Ala Tyr Phe Ser Phe Leu Glu Ala Leu  
20 25 30

Thr Gln Glu Asp Phe Pro Val Leu Ile Arg Ala Leu Lys Arg Phe Gly  
35 40 45

Ile Leu Asp Gly Phe Pro Asn Thr Arg Leu Pro Asn Glu Met Ile Leu  
50 55 60

Lys Leu Ser Ser Val Gln Gly Glu Asp Ala Ser Val Trp Glu Gln Ile  
65 70 75 80

Pro Ala Ala Glu Leu Gly Gly Glu Gly Phe Val Asp Phe Asp Ile Thr  
85 90 95

Gln Trp Tyr Tyr Pro Ala Asn Ala Lys Val Asp Val Ala Gln Leu Val  
100 105 110

Glu Pro Tyr Arg Asn Asp Cys Ile Phe His Asp Ala Ser Gly Ala Cys  
115 120 125

His Phe Phe Phe Lys Glu Val Gly Asn Trp Thr Val Ser Ser Ile Ala  
130 135 140

Leu Pro Ser Asn Leu Ala Asn Pro Pro Ile Asp Tyr Phe Leu Asp Ser  
145 150 155 160

Ser Ser Thr Val Ile Gln Arg Ile Leu Pro Ala Ile Arg Glu His Gly  
165 170 175

Ile Ser Trp Ser Trp Leu Leu Gln Leu Ile Ala Arg Thr Trp Met Asn  
180 185 190

Thr Leu Lys Ile Ala Ser Gln Ala Ser Lys Thr Glu Leu Leu Ile Val  
 195 200 205  
 Gly Thr Ala Tyr Ala Cys Met Leu Ile Ser Ile Val Ser Leu Tyr Leu  
 210 215 220  
 Lys Met Arg Arg Leu Gly Ser Lys Phe Trp Leu Phe Phe Ser Val Leu  
 225 230 235 240  
 Leu Ser Thr Leu Phe Ser Val Gln Phe Ala Met Thr Leu Val Arg Ala  
 245 250 255  
 Ser Gly Val Arg Ile Ser Leu Val Ser Leu Ile Glu Ser Leu Pro Phe  
 260 265 270  
 Leu Ile Asn Val Val Ala Leu Asp Lys Ala Ala Glu Leu Thr Arg Gln  
 275 280 285  
 Val Ile Thr Arg Cys Ser Val Ser Asp Ser His Ser Pro Met His Glu  
 290 295 300  
 Asp Ile Ala Lys Ala Cys Arg Asn Ala Ala Pro Pro Ile Leu Arg His  
 305 310 315 320  
 Phe Ser Phe Gly Ile Val Val Leu Ala Ile Phe Ser Tyr Cys Asn Phe  
 325 330 335  
 Gly Ile Lys Gln Phe Phe Leu Phe Ala Ala Val Met Ile Tyr Asp Leu  
 340 345 350  
 Leu Leu Leu Phe Ser Phe Phe Val Ala Ile Leu Thr Leu Lys Leu Glu  
 355 360 365  
 Met Arg Arg Tyr Asn Ala Lys Asp Asp Val Arg Lys Val Leu Ile Glu  
 370 375 380  
 Glu Gly Leu Ser Glu Ser Thr Ala Arg His Val Ala Asp Gly Asn Asp  
 385 390 395 400  
 Ser Ser Ala Thr Thr Ser Ala Gly Ser Arg Tyr Phe Lys Val Arg Tyr  
 405 410 415  
 Gly Thr Lys Ile Ile Leu Phe Ile Phe Ile Ala Phe Asn Leu Phe Glu  
 420 425 430  
 Leu Cys Ser Ile Pro Phe Lys His Tyr Ala Ala Thr Ser Ala Ala Ala

435		440		445
Ala Arg Leu Ile Pro Leu Val Arg Ser Gln Tyr Pro Asp Phe Lys Ser				
450		455		460
Gln Arg Leu Leu Asp Asp Gly Val Phe Asp Asp Val Leu Ser Ala Ile				
465		470		480
Ser Ser Met Ser Asn Ile Glu Ser Pro Ser Val Arg Leu Leu Pro Ala				
		485		495
Val Phe Tyr Gly Ala Glu Leu Ser Ser Thr Ser Phe Leu Ser Thr Ile				
		500		510
His Ser Phe Ile Asn Asn Trp Ser His Tyr Ile Ser Ala Ser Phe Leu				
		515		525
Ser Lys Trp Ile Val Cys Ala Leu Ser Leu Ser Ile Ala Val Asn Val				
		530		540
Phe Leu Leu Asn Ala Ala Arg Leu Asn Ser Ile Lys Glu Glu Pro Glu				
545		550		560
Lys Lys Val Val Glu Lys Val Val Glu Val Val Lys Tyr Ile Pro Ser				
		565		575
Ser Asn Ser Ser Ser Ile Asp Asp Ile Gln Lys Asp Glu Ile Ala Gln				
		580		590
Glu Ser Val Val Arg Ser Leu Glu Glu Cys Ile Thr Leu Tyr Asn Asn				
		595		605
Gly Gln Ile Ser Thr Leu Asn Asp Glu Glu Val Val Gln Leu Thr Leu				
		610		620
Ala Lys Lys Ile Pro Leu Tyr Ala Leu Glu Arg Val Leu Lys Asp Val				
625		630		640
Thr Arg Ala Val Val Ile Arg Arg Thr Val Val Ser Arg Ser Ser Arg				
		645		655
Thr Lys Thr Leu Glu Ser Ser Asn Cys Pro Val Tyr His Tyr Asp Tyr				
		660		670
Ser Arg Val Leu Asn Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro				
		675		685

Leu Pro Leu Gly Val Ala Gly Pro Leu Ile Ile Asp Gly Lys Pro Phe  
690 695 700

Tyr Ile Pro Met Ala Thr Thr Glu Gly Ala Leu Val Ala Ser Thr Met  
705 710 715 720

Arg Gly Cys Lys Ala Ile Asn Ala Gly Gly Gly Ala Val Thr Val Leu  
725 730 735

Thr Arg Asp Gln Met Ser Arg Gly Pro Cys Val Ala Phe Pro Asp Leu  
740 745 750

Thr Arg Ala Gly Arg Ala Lys Ile Trp Leu Asp Ser Pro Glu Gly Gln  
755 760 765

Glu Val Met Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala Arg Leu  
770 775 780

Gln His Ile Lys Thr Ala Leu Ala Gly Thr Arg Leu Phe Ile Arg Phe  
785 790 795 800

Cys Thr Ser Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser Lys Gly  
805 810 815

Val Glu His Ala Leu Val Val Met Ser Asn Asp Ala Gly Phe Asp Asp  
820 825 830

Met Gln Val Ile Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro  
835 840 845

Ala Ala Ile Asn Trp Ile Asp Gly Arg Gly Lys Ser Val Ile Ala Glu  
850 855 860

Ala Ile Ile Pro Gly Asp Ala Val Lys Ser Val Leu Lys Thr Thr Val  
865 870 875 880

Glu Asp Leu Val Lys Leu Asn Val Asp Lys Asn Leu Ile Gly Ser Ala  
885 890 895

Met Ala Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn Ile Val  
900 905 910

Thr Ala Val Tyr Leu Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu  
915 920 925

Ser Ser Asn Cys Ile Thr Leu Met Asp Asn Val Asp Gly Asn Leu Gln  
 930 935 940

Leu Ser Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile Gly Gly Gly  
 945 950 955 960

Thr Val Leu Glu Pro Gln Gly Ala Met Leu Asp Leu Leu Gly Val Arg  
 965 970 975

Gly Ala His Met Thr Ser Pro Gly Asp Asn Ser Arg Gln Leu Ala Arg  
 980 985 990

Val Val Ala Ala Ala Val Met Ala Gly Glu Leu Ser Leu Cys Ser Ala  
 995 1000 1005

Leu Ala Ser Gly His Leu Val Lys Ser His Ile Gly Leu Asn Arg  
 1010 1015 1020

Ser Ala Leu Asn Thr Pro Ala Met Asp Ser Ser Ala Lys Lys Pro  
 1025 1030 1035

Ala Thr Asp Ala Leu Lys Ser Val Asn Ser Arg Val Pro Gly Arg  
 1040 1045 1050

<210> 228

<211> 574

<212> PRT

<213> Solanum tuberosum

<400> 228

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Pro Ser Glu His  
 1 5 10 15

Ile Ser Ser Gly Glu Pro Leu Lys Pro His Asn Gln Asp Ser Ser Val  
 20 25 30

Lys Ala Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Gly Leu  
 35 40 45

Phe Phe Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu His Arg Trp  
 50 55 60

Arg Glu Lys Ile Arg Asn Gly Ile Pro Leu His Val Leu Asn Phe Ser  
 65 70 75 80

Glu Leu Val Ala Met Val Ser Leu Ile Ala Ser Val Ile Tyr Leu Leu

85					90					95					
Gly	Phe	Phe	Gly	Ile	Gly	Phe	Val	Gln	Ser	Phe	Val	Ser	Lys	Gly	Asn
			100					105					110		
Asn	Asp	Ser	Trp	Asp	Val	Glu	Asp	Glu	Ser	Pro	Glu	Gln	Phe	Ile	Asp
		115					120					125			
Arg	Thr	Val	Thr	Pro	Pro	Pro	Val	Arg	Arg	Asn	Ile	Pro	Met	Lys	Ser
	130						135				140				
Val	Pro	Val	Ala	Glu	Lys	Thr	Ala	Gln	Ile	Ile	Thr	Pro	Phe	Ser	Ser
145					150					155					160
Glu	Asp	Asp	Glu	Val	Val	Ile	Lys	Ser	Val	Val	Glu	Gly	Arg	Ile	Pro
			165						170					175	
Ser	Tyr	Ser	Leu	Glu	Ser	Lys	Leu	Gly	Asp	Cys	Lys	Arg	Ala	Ala	Phe
			180					185					190		
Ile	Arg	Lys	Glu	Ala	Leu	Gln	Arg	Ser	Ser	Gly	Lys	Ser	Leu	Glu	Gly
		195					200					205			
Leu	Pro	Leu	Asp	Gly	Phe	Asp	Tyr	Glu	Ser	Ile	Leu	Gly	Gln	Cys	Cys
	210					215					220				
Glu	Met	Pro	Ile	Gly	Tyr	Ile	Gln	Ile	Pro	Val	Gly	Ile	Ala	Gly	Pro
225					230					235					240
Leu	Leu	Leu	Asn	Gly	Lys	Glu	Phe	Ser	Val	Pro	Met	Ala	Thr	Thr	Glu
			245						250					255	
Gly	Cys	Leu	Val	Ala	Ser	Thr	Asn	Arg	Gly	Cys	Lys	Ala	Ile	Tyr	Val
			260					265					270		
Ser	Gly	Gly	Ala	Thr	Ser	Val	Leu	Phe	Arg	Asp	Ala	Met	Thr	Arg	Ala
		275					280					285			
Pro	Val	Val	Arg	Phe	Gly	Ser	Ala	Lys	Arg	Ala	Ala	Glu	Leu	Lys	Phe
	290					295					300				
Phe	Val	Glu	Asp	Pro	Met	Asn	Phe	Glu	Thr	Leu	Ser	Val	Val	Phe	Asn
305					310					315					320
Lys	Ser	Ser	Arg	Phe	Ala	Arg	Leu	Gln	Asn	Ile	Gln	Cys	Ala	Ile	Ala
			325						330					335	

Gly Lys Asn Leu Tyr Met Arg Phe Ser Cys Ser Thr Gly Asp Ala Met  
 340 345 350

Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val Leu Asp Tyr Leu  
 355 360 365

Gln Asn Glu Tyr Pro Asp Met Asp Ile Ile Gly Ile Ser Gly Asn Tyr  
 370 375 380

Cys Ser Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly  
 385 390 395 400

Lys Ser Val Val Cys Glu Ala Ile Ile Lys Glu Asp Val Val Lys Lys  
 405 410 415

Val Leu Lys Thr Glu Val Ala Thr Leu Val Glu Leu Asn Met Leu Lys  
 420 425 430

Asn Leu Thr Gly Ser Ala Met Ala Gly Ala Leu Gly Gly Phe Asn Ala  
 435 440 445

His Ala Ser Asn Ile Val Ser Ala Val Tyr Leu Ala Thr Gly Gln Asp  
 450 455 460

Pro Ala Gln Asn Ile Glu Ser Ser His Cys Ile Thr Met Met Glu Ala  
 465 470 475 480

Val Asn Asp Gly Lys Asp Leu His Ile Ser Val Thr Met Pro Ser Ile  
 485 490 495

Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ser Ala  
 500 505 510

Cys Leu Asn Leu Leu Gly Val Lys Gly Ala Asn Arg Glu Ala Pro Gly  
 515 520 525

Ser Asn Ala Arg Leu Leu Ala Thr Ile Val Ala Gly Ser Val Leu Ala  
 530 535 540

Gly Glu Leu Ser Leu Met Ser Ala Ile Ser Ala Gly Gln Leu Val Lys  
 545 550 555 560

Ser His Met Lys Tyr Asn Arg Ser Cys Lys Asp Val Thr Lys  
 565 570

<210> 229  
<211> 18  
<212> PRT  
<213> Solanum tuberosum

<400> 229

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Pro Ser Glu His  
1 5 10 15

Ile Ser

<210> 230  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 230

Met Asp Val Cys Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Phe Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Leu His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 231  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 231

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30



Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Arg Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Phe His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 232  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 232

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg Glu  
50 55 60

Lys Ile Arg Asn Ser Ile Pro Leu His Val Val Thr Leu Ser Glu Leu  
65 70 75 80

Leu Ala

<210> 233  
<211> 82  
<212> PRT  
<213> Solanum tuberosum

<400> 233

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Glu Val Ser Ser Pro Lys Ala  
20 25 30

Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Thr Gly Leu Phe Phe  
 35 40 45

Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Ile Arg Trp Arg Glu  
 50 55 60

Lys Ile Arg Asn Ser Ile Pro Leu His Ala Val Thr Leu Ser Glu Leu  
 65 70 75 80

Leu Ala

<210> 234  
 <211> 244  
 <212> PRT  
 <213> Rattus norvegicus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(244)  
 <223> X equals unknown

<400> 234

Pro Ile Arg Ser Pro Lys Arg Gly Thr Ser Met Gly Met Asn Met Ile  
 1 5 10 15

Ser Lys Gly Thr Glu Lys Ala Leu Leu Lys Leu Gln Glu Phe Phe Pro  
 20 25 30

Glu Leu Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys  
 35 40 45

Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys Thr Val Val Cys  
 50 55 60

Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val Leu Lys Ser Thr  
 65 70 75 80

Thr Glu Ala Met Val Asp Val Asn Ile Asn Lys Asn Leu Val Gly Ser  
 85 90 95

Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala Ala Asn Ile  
 100 105 110

Val Thr Ala Ile Tyr Ile Ala Cys Ala Gln Asp Ala Ala Gln Asn Val  
 115 120 125

Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly Pro Xaa Xaa  
 130 135 140

Glu Asp Leu Xaa Xaa Ser Xaa Xaa Met Pro Ser Ile Glu Ile Gly Thr  
 145 150 155 160

Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys Leu Gln Met  
 165 170 175

Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu Asn Ala Arg  
 180 185 190

Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly Glu Leu Ser  
 195 200 205

Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Arg Ser His Met Val  
 210 215 220

His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly Thr Cys Thr  
 225 230 235 240

Lys Lys Ala Ala

<210> 235

<211> 436

<212> PRT

<213> Archaeoglobus fulgidus

<400> 235

Met Gln Val Leu Arg Leu Asp Arg Arg His Tyr Lys Ser Gly Lys Ile  
 1 5 10 15

Arg Arg Ala Met Ser Ser Arg Ile Pro Gly Phe Tyr Lys Leu Ser Val  
 20 25 30

Glu Glu Arg Leu Lys Lys Val Ala Glu Phe Ala Gly Leu Ser Asp Glu  
 35 40 45

Glu Val Lys Ala Val Leu Ser Gln Gly Leu Pro Leu Asp Val Ala Asp  
 50 55 60

Arg Met Ile Glu Asn Val Ile Gly Thr Phe Glu Leu Pro Leu Gly Ile  
 65 70 75 80

Ala Thr Asn Phe Leu Ile Asp Gly Lys Asp Tyr Leu Ile Pro Met Ala  
                     85                    90                    95

Ile Glu Glu Pro Ser Val Val Ala Ala Ala Ser Asn Ala Ala Arg Met  
                     100                    105                    110

Ala Arg Glu Ser Gly Gly Phe Thr Thr Asp Tyr Thr Gly Ser Leu Met  
                     115                    120                    125

Ile Gly Gln Ile Gln Val Thr Lys Leu Leu Asn Pro Asn Ala Ala Lys  
                     130                    135                    140

Phe Glu Val Leu Arg Gln Lys Asp Glu Ile Ile Glu Arg Ala Asn Glu  
 145                    150                    155                    160

Cys Asp Pro Met Leu Val Asn Leu Gly Gly Gly Cys Lys Asp Ile Glu  
                     165                    170                    175

Ala Arg Val Ile Asp Thr Ile Met Gly Lys Met Leu Ile Val His Leu  
                     180                    185                    190

Ile Val Asp Val Lys Asp Ala Met Gly Ala Asn Ala Val Asn Thr Met  
                     195                    200                    205

Cys Glu Lys Val Ala Pro Phe Ile Glu Arg Ile Thr Gly Gly Lys Val  
                     210                    215                    220

Tyr Leu Arg Ile Ile Ser Asn Leu Ala Ala Tyr Arg Leu Ala Arg Ala  
 225                    230                    235                    240

Lys Ala Val Phe Asp Lys Asp Val Ile Gly Gly Glu Glu Val Val Glu  
                     245                    250                    255

Gly Ile Met Leu Ala Tyr Ala Phe Ala Ala Ala Asp Pro Phe Arg Cys  
                     260                    265                    270

Ala Thr His Asn Lys Gly Ile Met Asn Gly Ile Ser Ala Leu Met Ile  
                     275                    280                    285

Ala Thr Gly Asn Asp Phe Arg Ala Ile Glu Ala Gly Ala His Ser Tyr  
                     290                    295                    300

Ala Ala Ile Gly Gly Tyr Lys Pro Leu Thr Thr Tyr Glu Val Asp Arg  
 305                    310                    315                    320

Lys Gly Asn Leu Val Gly Thr Ile Glu Ile Pro Met Ala Val Gly Val



Ala Arg Ala Asn Gly Gly Phe Thr Thr Ser Ser Ser Ala Pro Leu Met  
 100 105 110

His Ala Gln Val Gln Ile Val Gly Ile Gln Asp Pro Leu Asn Ala Arg  
 115 120 125

Leu Ser Leu Leu Arg Arg Lys Asp Glu Ile Ile Glu Leu Ala Asn Arg  
 130 135 140

Lys Asp Gln Leu Leu Asn Ser Leu Gly Gly Gly Cys Arg Asp Ile Glu  
 145 150 155 160

Val His Thr Phe Ala Asp Thr Pro Arg Gly Pro Met Leu Val Ala His  
 165 170 175

Leu Ile Val Asp Val Arg Asp Ala Met Gly Ala Asn Thr Val Asn Thr  
 180 185 190

Met Ala Glu Ala Val Ala Pro Leu Met Glu Ala Ile Thr Gly Gly Gln  
 195 200 205

Val Arg Leu Arg Ile Leu Ser Asn Leu Ala Asp Leu Arg Leu Ala Arg  
 210 215 220

Ala Gln Val Arg Ile Thr Pro Gln Gln Leu Glu Thr Ala Glu Phe Ser  
 225 230 235 240

Gly Glu Ala Val Ile Glu Gly Ile Leu Asp Ala Tyr Ala Phe Ala Ala  
 245 250 255

Val Asp Pro Tyr Arg Ala Ala Thr His Asn Lys Gly Ile Met Asn Gly  
 260 265 270

Ile Asp Pro Leu Ile Val Ala Thr Gly Asn Asp Trp Arg Ala Val Glu  
 275 280 285

Ala Gly Ala His Ala Tyr Ala Cys Arg Ser Gly His Tyr Gly Ser Leu  
 290 295 300

Thr Thr Trp Glu Lys Asp Asn Asn Gly His Leu Val Gly Thr Leu Glu  
 305 310 315 320

Met Pro Met Pro Val Gly Leu Val Gly Gly Ala Thr Lys Thr His Pro  
 325 330 335

Leu Ala Gln Leu Ser Leu Arg Ile Leu Gly Val Lys Thr Ala Gln Ala  
 340 345 350

Leu Ala Glu Ile Ala Val Ala Val Gly Leu Ala Gln Asn Leu Gly Ala  
 355 360 365

Met Arg Ala Leu Ala Thr Glu Gly Ile Gln Arg Gly His Met Ala Leu  
 370 375 380

His Ala Arg Asn Ile Ala Val Val Ala Gly Ala Arg Gly Asp Glu Val  
 385 390 395 400

Asp Trp Val Ala Arg Gln Leu Val Glu Tyr His Asp Val Arg Ala Asp  
 405 410 415

Arg Ala Val Ala Leu Leu Lys Gln Lys Arg Gly Gln  
 420 425

<210> 237

<211> 397

<212> PRT

<213> Methanothermobacter thermautotrophicus

<400> 237

Met Ser Ile Met Asp Asp Leu Met Glu Gly Arg Ile Lys Leu Tyr Glu  
 1 5 10 15

Ile Glu Arg His Val Pro Val Asp Glu Ala Val Arg Ile Arg Arg Glu  
 20 25 30

Phe Ile Glu Arg Thr Cys Gly Val Lys Leu Glu His Val Ser Asn Tyr  
 35 40 45

Ser Ile Asp Met Glu Arg Ala Ser Arg Arg Asn Ile Glu Asn Pro Ile  
 50 55 60

Gly Val Val Gln Ile Pro Leu Gly Val Ala Gly Pro Leu Arg Val Arg  
 65 70 75 80

Gly Glu His Ala Asp Gly Glu Tyr Tyr Val Pro Leu Ala Thr Ser Glu  
 85 90 95

Gly Ala Leu Val Ala Ser Val Asn Arg Gly Cys Ser Val Ile Thr Arg  
 100 105 110

Ala Gly Gly Ala Thr Val Arg Val Thr Gly Asp Ser Met Thr Arg Ala  
 115 120 125

Pro Val Ile Arg Thr Gly Ser Val Val Glu Ala Leu Gln Leu Arg Glu  
130 135 140

Trp Ile Tyr Glu Asn Met Asp Ala Leu Arg Glu Glu Ala Glu Ser Thr  
145 150 155 160

Thr Arg His Gly Lys Leu Val Lys Ile Asp Pro Ile Ile Val Ala Gly  
165 170 175

Ser Tyr Val Tyr Pro Arg Phe Val Tyr Thr Thr Gly Asp Ser Met Gly  
180 185 190

Met Asn Met Val Thr Ile Ala Thr Glu Arg Ala Leu Glu Leu Leu Thr  
195 200 205

Arg Glu Thr Gly Ala His Val Ile Ala Leu Ser Gly Asn Leu Cys Thr  
210 215 220

Asp Lys Lys Pro Ala Ala Val Asn Leu Ile Glu Gly Arg Gly Lys Ser  
225 230 235 240

Ile Thr Ala Glu Ile Thr Val Pro Gly Glu Met Val Glu Ser Val Leu  
245 250 255

Lys Thr Thr Pro Glu Ala Val Val Glu Val Asn Thr Ala Lys Asn Leu  
260 265 270

Ile Gly Ser Ala Ala Ala Gly Ser Met Gly Phe Asn Ala His Tyr Ala  
275 280 285

Asn Ile Ile Gly Ala Ile Phe Leu Ala Thr Gly Gln Asp Glu Ala His  
290 295 300

Ile Val Glu Gly Ser Leu Gly Val Thr Ile Ala Glu Glu Arg Lys Gly  
305 310 315 320

Asp Leu Tyr Phe Ala Val Asn Leu Pro Asp Val Pro Leu Ala Thr Val  
325 330 335

Gly Gly Gly Thr Gly Leu Glu Thr Ala Ser Glu Cys Leu Asp Ile Met  
340 345 350

Gly Val Arg Gly Gly Gly Arg Val His Ala Phe Ala Glu Ile Val Gly  
355 360 365



Gly Ala Val Leu Ala Gly Glu Leu Ser Leu Met Gly Ala Leu Ala Ala  
 370 375 380

Gly His Leu Ala Arg Ala His Ser Glu Leu Gly Arg Gly  
 385 390 395

<210> 238  
 <211> 405  
 <212> PRT  
 <213> Methanococcus jannaschii

<400> 238

Met Glu Asn Tyr Asn Asp Ile Leu Glu Lys Met Leu Asn Gly Glu Ile  
 1 5 10 15

Lys Pro Tyr Gln Leu Asp Lys Met Phe Gly Ser Lys Ile Ala Thr Glu  
 20 25 30

Ile Arg Arg Lys Phe Ile Glu Lys Lys Val Gly Ile Glu Phe Lys His  
 35 40 45

Ile Cys Asn Tyr Ser Ile Asp Glu Glu Met Ala Met Lys Lys Asn Ile  
 50 55 60

Glu Asn Met Ile Gly Ala Ile Gln Ile Pro Leu Gly Phe Ala Gly Pro  
 65 70 75 80

Leu Lys Ile Asn Gly Glu Tyr Ala Lys Gly Glu Phe Tyr Ile Pro Leu  
 85 90 95

Ala Thr Thr Glu Gly Ala Leu Val Ala Ser Val Asn Arg Gly Cys Ser  
 100 105 110

Ile Ile Thr Lys Cys Gly Gly Ala Thr Val Arg Val Ile Asp Asp Lys  
 115 120 125

Met Thr Arg Ala Pro Cys Leu Lys Thr Lys Ser Val Val Asp Ala Ile  
 130 135 140

Lys Val Arg Asp Trp Ile Arg Glu Asn Phe Glu Arg Ile Lys Glu Val  
 145 150 155 160

Ala Glu Ser Thr Thr Arg His Gly Lys Leu Ile Lys Ile Glu Pro Ile  
 165 170 175

Leu Ile Val Gly Arg Asn Leu Tyr Pro Arg Phe Val Phe Lys Thr Gly

180					185					190					
Asp	Ala	Met	Gly	Met	Asn	Met	Val	Thr	Ile	Ala	Thr	Glu	Lys	Ala	Cys
	195						200					205			
Asn	Phe	Ile	Glu	Gly	Glu	Leu	Lys	Lys	Glu	Gly	Ile	Phe	Val	Lys	Thr
	210					215					220				
Val	Ala	Val	Ser	Gly	Asn	Ala	Cys	Val	Asp	Lys	Lys	Pro	Ser	Gly	Met
	225					230					235				240
Asn	Leu	Ile	Asn	Gly	Arg	Gly	Lys	Ser	Ile	Val	Ala	Glu	Val	Phe	Leu
				245					250					255	
Thr	Glu	Lys	Glu	Val	Asn	Lys	Tyr	Leu	Lys	Thr	Thr	Ser	Gln	Ala	Ile
			260					265					270		
Ala	Glu	Val	Asn	Arg	Leu	Lys	Asn	Tyr	Ile	Gly	Ser	Ala	Ile	Ser	Asn
		275					280					285			
Ser	Met	Gly	Phe	Asn	Ala	His	Tyr	Ala	Asn	Ile	Ile	Gly	Ala	Ile	Phe
	290					295					300				
Leu	Ala	Thr	Gly	Gln	Asp	Glu	Ala	His	Ile	Val	Glu	Gly	Ser	Leu	Gly
	305					310					315				320
Ile	Thr	Met	Ala	Glu	Val	Glu	Asp	Asp	Gly	Leu	Tyr	Phe	Ser	Val	Thr
				325					330					335	
Leu	Pro	Asp	Val	Pro	Ile	Gly	Thr	Val	Gly	Gly	Gly	Thr	Arg	Val	Glu
			340					345					350		
Thr	Gln	Lys	Glu	Cys	Leu	Glu	Met	Leu	Gly	Cys	Tyr	Gly	Asp	Asn	Lys
		355					360					365			
Ala	Leu	Lys	Phe	Ala	Glu	Ile	Val	Gly	Ala	Ala	Val	Leu	Ala	Gly	Glu
	370					375					380				
Leu	Ser	Leu	Leu	Gly	Ala	Leu	Ala	Ala	Gly	His	Leu	Gly	Lys	Ala	His
	385					390					395				400
Gln	Glu	Leu	Gly	Arg											
				405											

<210> 239

<211> 403

<212> PRT

<213> Haloferax volcanii

<400> 239

Met Thr Asp Ala Ala Ser Leu Ala Asp Arg Val Arg Glu Gly Asp Leu  
1 5 10 15

Arg Leu His Glu Leu Glu Ala His Ala Asp Ala Asp Thr Ala Ala Glu  
20 25 30

Ala Arg Arg Leu Leu Val Glu Ser Gln Ser Gly Ala Ser Leu Asp Ala  
35 40 45

Val Gly Asn Tyr Gly Phe Pro Ala Glu Ala Ala Glu Ser Ala Ile Glu  
50 55 60

Asn Met Val Gly Ser Ile Gln Val Pro Met Gly Val Ala Gly Pro Val  
65 70 75 80

Ser Val Asp Gly Gly Ser Val Ala Gly Glu Lys Tyr Leu Pro Leu Ala  
85 90 95

Thr Thr Glu Gly Ala Leu Leu Ala Ser Val Asn Arg Gly Cys Ser Val  
100 105 110

Ile Asn Ser Ala Gly Gly Ala Thr Ala Arg Val Leu Lys Ser Gly Met  
115 120 125

Thr Arg Ala Pro Val Phe Arg Val Ala Asp Val Ala Glu Ala Glu Ala  
130 135 140

Leu Val Ser Trp Thr Arg Asp Asn Phe Ala Ala Leu Lys Glu Ala Ala  
145 150 155 160

Glu Glu Thr Thr Asn His Gly Glu Leu Leu Asp Val Thr Pro Tyr Val  
165 170 175

Val Gly Asn Ser Val Tyr Leu Arg Phe Arg Tyr Asp Thr Lys Asp Ala  
180 185 190

Met Gly Met Asn Met Ala Thr Ile Ala Thr Glu Ala Val Cys Gly Val  
195 200 205

Val Glu Ala Glu Thr Ala Ala Ser Leu Val Ala Leu Ser Gly Asn Leu  
210 215 220

Cys Ser Asp Lys Lys Pro Ala Ala Ile Asn Ala Val Glu Gly Arg Gly  
 225 230 235 240

Arg Ser Val Thr Ala Asp Val Arg Ile Pro Arg Glu Val Val Glu Glu  
 245 250 255

Arg Leu His Thr Thr Pro Glu Arg Gly Arg Glu Leu Asn Thr Arg Lys  
 260 265 270

Asn Leu Val Gly Ser Ala Lys Ala Ala Ser Leu Gly Phe Asn Ala His  
 275 280 285

Val Ala Asn Val Val Ala Ala Met Phe Leu Ala Thr Gly Gln Asp Glu  
 290 295 300

Ala Gln Val Val Glu Gly Ala Asn Ala Ile Thr Thr Ala Glu Val Gln  
 305 310 315 320

Asp Gly Asp Leu Tyr Val Ser Val Ser Ile Ala Ser Leu Glu Val Gly  
 325 330 335

Thr Val Gly Gly Gly Thr Lys Leu Pro Thr Gln Ser Glu Gly Leu Asp  
 340 345 350

Ile Leu Gly Val Ser Gly Gly Gly Asp Pro Ala Gly Ser Asn Ala Asp  
 355 360 365

Ala Leu Ala Glu Cys Ile Ala Val Gly Ser Leu Ala Gly Glu Leu Ser  
 370 375 380

Leu Leu Ser Ala Leu Ala Ser Arg His Leu Ser Ser Ala His Ala Glu  
 385 390 395 400

Leu Gly Arg

<210> 240  
 <211> 856  
 <212> PRT  
 <213> Blattella germanica

<400> 240

Met Val Gly Arg Leu Phe Arg Ala His Gly Gln Phe Cys Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Val Cys Met Leu  
 20 25 30

Thr Val Asp Gln Arg Pro Leu Gly Leu Pro Pro Gly Trp Gly His Asn  
 35 40 45

Cys Ile Thr Leu Glu Glu Tyr Asn Ala Ala Asp Met Ile Val Met Thr  
 50 55 60

Leu Ile Arg Cys Val Ala Val Leu Tyr Ser Tyr Tyr Gln Phe Cys His  
 65 70 75 80

Leu Gln Lys Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly Leu Phe  
 85 90 95

Thr Val Phe Ser Ser Phe Val Phe Ser Ser Ser Val Ile Asn Phe Leu  
 100 105 110

Gly Ser Asp Val Ser Asp Leu Lys Asp Ala Leu Phe Phe Phe Leu Leu  
 115 120 125

Leu Ile Asp Leu Ser Lys Ala Thr Val Leu Ala Gln Phe Ala Leu Ser  
 130 135 140

Ser Arg Ser Gln Asp Glu Val Lys His Asn Ile Ala Arg Gly Ile Ala  
 145 150 155 160

Met Leu Gly Pro Thr Ile Thr Leu Asp Thr Val Val Glu Thr Leu Val  
 165 170 175

Ile Gly Val Gly Met Leu Ser Gly Val Arg Arg Leu Glu Val Leu Cys  
 180 185 190

Cys Phe Ala Cys Met Ser Val Ile Val Asn Tyr Val Val Phe Met Thr  
 195 200 205

Phe Tyr Pro Ala Cys Leu Ser Leu Ile Leu Glu Leu Ser Arg Ser Gly  
 210 215 220

Glu Ser Gly Arg Pro Ala Trp His Asp Lys Ser Leu Ile Ile Lys Ala  
 225 230 235 240

Leu His Glu Glu Asp Gln Lys Pro Asn Pro Val Val Gln Arg Val Lys  
 245 250 255

Val Ile Met Ser Ala Gly Leu Met Leu Val His Ala His Arg Trp Val  
 260 265 270

Arg Cys Leu Ser Ile Ala Leu Trp Pro Asp Leu Thr Ser Leu Arg Tyr  
 275 280 285

Phe Cys Thr His Cys Asp Thr Gly Val Ser Tyr Ser Arg Trp Ser Phe  
 290 295 300

Ala Ser Glu Gly Glu Glu Leu Pro Thr Val Lys Leu Val Thr Gly Asp  
 305 310 315 320

Ser Val Val Asn Ser Asn Ser Thr Asp Asp Ala Gln Leu His Tyr Tyr  
 325 330 335

Ile Met Arg Trp Leu Thr Val Ser Ala Asp His Ile Val Ile Leu Ile  
 340 345 350

Leu Leu Leu Ala Leu Ala Val Lys Phe Val Phe Phe Glu Thr Arg Asp  
 355 360 365

Glu Leu Thr Thr Thr Arg Gly Met Asp Gly Trp Val Glu Val Ser Ser  
 370 375 380

Pro Val Glu His Lys Tyr Val Gln Thr Glu Gln Pro Ser Cys Ser Ala  
 385 390 395 400

Pro Glu Gln Pro Leu Glu Glu Pro Pro Ala Ser Asn Arg Ser Ile Asp  
 405 410 415

Glu Cys Leu Ser Val Cys Lys Ser Asp Val Gly Ala Gln Ala Leu Ser  
 420 425 430

Asp Cys Glu Val Met Ala Leu Val Thr Ser Gly His Ile Ala Gly Tyr  
 435 440 445

Gln Leu Glu Lys Val Val Arg Asn Pro Glu Arg Gly Val Gly Ile Arg  
 450 455 460

Arg Gln Ile Leu Thr Lys Thr Ala Asp Leu Lys Asp Ala Leu Asp Asn  
 465 470 475 480

Leu Pro Tyr Lys Asn Tyr Asp Tyr Leu Lys Val Met Gly Ala Cys Cys  
 485 490 495

Glu Asn Val Ile Gly Tyr Met Pro Val Pro Val Gly Val Ala Gly Pro  
 500 505 510

Leu Asn Leu Asp Gly Arg Leu Val His Val Pro Leu Ala Thr Thr Glu  
 515 520 525  
 Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Met Arg Ala Leu Met Arg  
 530 535 540  
 Cys Gly Val Thr Ser Arg Ile Val Ala Asp Gly Met Thr Arg Gly Pro  
 545 550 555 560  
 Val Val Arg Phe Pro Asn Ile Asp Arg Ala Ser Glu Ala Met Leu Trp  
 565 570 575  
 Met Gln Val Pro Tyr Asn Phe Glu Gln Ile Lys Lys Asn Phe Asp Ser  
 580 585 590  
 Thr Ser Arg Phe Ala Arg Leu Ser Lys Ile His Ile Arg Val Ala Gly  
 595 600 605  
 Arg His Leu Phe Ile Arg Phe Ile Ala Thr Thr Gly Asp Ala Met Gly  
 610 615 620  
 Met Asn Met Leu Ser Lys Gly Thr Glu Val Ala Leu Ala Tyr Val Gln  
 625 630 635 640  
 Gln Val Tyr Pro Asp Met Glu Ile Leu Ser Leu Ser Gly Asn Phe Cys  
 645 650 655  
 Thr Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys  
 660 665 670  
 Ser Val Val Cys Glu Ala Ile Val Pro Ala Asp Ile Ile Lys Ser Val  
 675 680 685  
 Leu Lys Thr Ser Val Gln Ala Leu Met Asp Val Asn Ile Thr Lys Asn  
 690 695 700  
 Leu Ile Gly Ser Ala Val Ala Gly Ser Ile Gly Gly Phe Asn Ala His  
 705 710 715 720  
 Ala Ala Asn Ile Val Thr Ala Ile Phe Ile Ala Thr Gly Gln Asp Pro  
 725 730 735  
 Ala Gln Asn Val Gly Ser Ser Asn Cys Met Thr Leu Met Glu Pro Trp  
 740 745 750  
 Gly Glu Asp Gly Lys Asp Leu Tyr Val Ser Cys Thr Met Pro Ser Ile





Glu Ser Arg Leu Gly Asp Cys Arg Arg Ala Ala Arg Leu Arg Arg Glu  
 115 120 125

Ala Leu Arg Arg Val Thr Gly Arg Gly Val Glu Gly Leu Pro Phe Asp  
 130 135 140

Gly Met Asp Tyr Gln Ala Ile Leu Gly Gln Cys Cys Glu Met Pro Val  
 145 150 155 160

Gly Tyr Val Gln Leu Pro Val Gly Val Ala Gly Pro Leu Leu Leu Asp  
 165 170 175

Gly Arg Glu Tyr His Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val  
 180 185 190

Ala Ser Val Asn Arg Arg Val Gln Gly His Leu Val Ser Gly Gly Ala  
 195 200 205

Phe Ser Val Leu Leu Arg Asp Ala Met Ser Arg Ala Pro Ala Val Lys  
 210 215 220

Leu Pro Cys Pro Met Arg Ala Ala Glu Leu Lys Ala Phe Ala Glu Ala  
 225 230 235 240

Pro Ala Asn Phe Glu Leu Leu Ala Ala Val Phe Asn Arg Ser Ser Arg  
 245 250 255

Phe Gly Arg Leu Gln Asp Ile Arg Cys Ala Leu Ala Gly Arg Asn Leu  
 260 265 270

Tyr Met Arg Phe Ser Cys Ile Thr Gly Asp Ala Met Gly Met Asn Met  
 275 280 285

Val Ser Lys Gly Val Glu Asn Val Leu Gly Tyr Leu Gln Asn Val Phe  
 290 295 300

Pro Asp Met Asp Val Ile Ser Val Ser Gly Asn Tyr Cys Ser Asp Lys  
 305 310 315 320

Lys Pro Thr Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val  
 325 330 335

Cys Glu Ala Ile Ile Lys Gly Asp Val Val Gln Lys Val Leu Lys Thr  
 340 345 350

Thr Val Glu Lys Leu Val Glu Leu Asn Ile Ile Lys Asn Leu Ala Gly  
 355 360 365

Ser Ala Val Ala Gly Ala Leu Gly Gly Phe Asn Ala His Ala Ser Asn  
 370 375 380

Ile Val Thr Ala Leu Phe Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn  
 385 390 395 400

Val Glu Ser Ser Gln Cys Ile Thr Met Leu Glu Glu Val Asn Asp Gly  
 405 410 415

Asp Asp Leu His Ile Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr  
 420 425 430

Ile Gly Gly Gly Thr Cys Leu Ala Ser Gln Ala Ala Cys Leu Asn Leu  
 435 440 445

Leu Gly Val Lys Gly Ser Asn His Gly Ser Pro Gly Ala Asn Ala Gly  
 450 455 460

Arg Leu Ala Thr Ile Val Ala Gly Ser Val Val Ala Gly Arg Ala Leu  
 465 470 475 480

Leu Leu Ala Ala Leu Ala Ser Gly His Leu Val Lys Ser His Met Met  
 485 490 495

Tyr Asn Arg Ser Ser Lys Asp Val Ala Lys Ala Ala Ser  
 500 505

<210> 242

<211> 596

<212> PRT

<213> Solanum tuberosum

<400> 242

Met Asp Val Arg Arg Arg Pro Val Lys Pro Leu Tyr Thr Ser Lys Asp  
 1 5 10 15

Ala Ser Ala Gly Glu Pro Leu Lys Gln Gln Glu Val Ser Ser Pro Lys  
 20 25 30

Ala Ser Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Gly Leu Phe  
 35 40 45

Phe Thr Met Phe Phe Ser Val Met Tyr Phe Leu Leu Val Arg Trp Arg  
 50 55 60

Glu Lys Ile Arg Asn Ser Ile Pro Leu His Val Val Thr Leu Ser Glu  
65 70 75 80

Leu Leu Ala Met Val Ser Leu Ile Ala Ser Val Ile Tyr Leu Leu Gly  
85 90 95

Phe Phe Gly Ile Gly Phe Val Gln Ser Phe Val Ser Arg Ser Asn Ser  
100 105 110

Asp Ser Trp Asp Ile Glu Asp Glu Asn Ala Glu Gln Leu Ile Ile Glu  
115 120 125

Glu Asp Ser Arg Arg Gly Pro Cys Ala Ala Ala Thr Thr Leu Gly Cys  
130 135 140

Val Val Pro Pro Pro Pro Val Arg Lys Ile Ala Pro Met Val Pro Gln  
145 150 155 160

Gln Pro Ala Lys Val Ala Leu Ser Gln Thr Glu Lys Pro Ser Pro Ile  
165 170 175

Ile Met Pro Ala Leu Ser Glu Asp Asp Glu Glu Ile Ile Gln Ser Val  
180 185 190

Val Gln Gly Lys Thr Pro Ser Tyr Ser Leu Glu Ser Lys Leu Gly Asp  
195 200 205

Cys Met Arg Ala Ala Ser Ile Arg Lys Glu Ala Leu Gln Arg Ile Thr  
210 215 220

Gly Lys Ser Leu Glu Gly Leu Pro Leu Glu Gly Phe Asp Tyr Ser Ser  
225 230 235 240

Ile Leu Gly Gln Cys Cys Glu Met Pro Val Gly Tyr Val Gln Ile Pro  
245 250 255

Val Gly Ile Ala Gly Pro Leu Leu Leu Asp Gly Arg Glu Tyr Ser Val  
260 265 270

Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly  
275 280 285

Cys Lys Ala Ile Phe Val Ser Gly Gly Ala Asp Ser Val Leu Leu Arg  
290 295 300

Asp Gly Met Thr Arg Ala Pro Val Val Arg Phe Thr Thr Ala Lys Arg  
 305 310 315 320

Ala Ala Glu Leu Lys Phe Phe Val Glu Asp Pro Leu Asn Phe Glu Thr  
 325 330 335

Leu Ser Leu Met Phe Asn Lys Ser Ser Arg Phe Ala Arg Leu Gln Gly  
 340 345 350

Ile Gln Cys Ala Ile Ala Gly Lys Asn Leu Tyr Ile Thr Phe Ser Cys  
 355 360 365

Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Gly Val Gln  
 370 375 380

Asn Val Leu Asp Tyr Leu Gln Ser Glu Tyr Pro Asp Met Asp Val Ile  
 385 390 395 400

Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala Val Asn  
 405 410 415

Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Ile Lys  
 420 425 430

Glu Glu Val Val Lys Lys Val Leu Lys Thr Glu Val Ala Ala Leu Val  
 435 440 445

Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser Ala Met Ala Gly Ala  
 450 455 460

Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Ser Ala Val Tyr  
 465 470 475 480

Leu Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser His Cys  
 485 490 495

Ile Thr Met Met Glu Ala Val Asn Asp Gly Lys Asp Leu His Val Ser  
 500 505 510

Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln  
 515 520 525

Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala  
 530 535 540

Asn Arg Asp Ala Pro Gly Ser Asn Ala Arg Leu Leu Ala Thr Ile Val  
 545 550 555 560

Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Ile Ser  
 565 570 575

Ala Gly Gln Leu Val Lys Ser His Met Lys Tyr Asn Arg Ser Ile Lys  
 580 585 590

Asp Ile Ser Lys  
 595

<210> 243  
 <211> 604  
 <212> PRT  
 <213> *Nicotiana sylvestris*

<400> 243

Met Asp Val Arg Arg Arg Ser Glu Lys Pro Ala Tyr Pro Thr Lys Glu  
 1 5 10 15

Phe Ala Ala Gly Glu Lys Pro Leu Lys Pro His Lys Gln Gln Gln Glu  
 20 25 30

Gln Asp Asn Ser Leu Leu Ile Ala Ser Asp Ala Leu Pro Leu Pro Leu  
 35 40 45

Tyr Leu Thr Asn Gly Leu Phe Phe Thr Met Phe Phe Ser Val Met Tyr  
 50 55 60

Tyr Leu Leu Ser Arg Trp Arg Glu Lys Ile Arg Asn Ser Thr Pro Leu  
 65 70 75 80

His Val Val Thr Phe Ser Glu Leu Val Ala Ile Ala Ser Leu Ile Ala  
 85 90 95

Ser Val Ile Tyr Leu Leu Gly Phe Phe Gly Ile Gly Phe Val Gln Ser  
 100 105 110

Phe Val Ser Arg Asp Asn Asn Asp Glu Cys Trp Asp Glu Glu Asp Glu  
 115 120 125

Asn Asp Glu Gln Phe Leu Leu Glu Glu Asp Ser Arg Arg Gly Pro Ala  
 130 135 140

Thr Thr Leu Gly Cys Thr Ala Val Pro Pro Pro Pro Ala Leu Gln Ile  
 145 150 155 160

Val	Pro	Met	Val	Pro	Pro	Gln	Pro	Ser	Lys	Val	Ala	Ala	Met	Ser	Glu	165	170	175
Lys	Pro	Ala	Pro	Leu	Val	Thr	Pro	Ala	Ala	Ser	Glu	Glu	Asp	Glu	Glu	180	185	190
Ile	Ile	Lys	Ser	Val	Val	Gln	Gly	Lys	Met	Pro	Ser	Tyr	Ser	Leu	Glu	195	200	205
Ser	Lys	Leu	Gly	Asp	Cys	Lys	Arg	Ala	Ala	Ser	Ile	Arg	Lys	Glu	Ala	210	215	220
Leu	Gln	Arg	Ile	Thr	Gly	Lys	Ser	Leu	Glu	Gly	Leu	Pro	Leu	Glu	Gly	225	230	235
Phe	Asp	Tyr	Glu	Ser	Ile	Leu	Gly	Gln	Cys	Cys	Glu	Met	Pro	Ile	Gly	245	250	255
Tyr	Val	Gln	Ile	Pro	Val	Gly	Ile	Ala	Gly	Pro	Leu	Leu	Leu	Asp	Gly	260	265	270
Arg	Glu	Tyr	Ser	Val	Pro	Met	Ala	Thr	Thr	Glu	Gly	Cys	Leu	Val	Ala	275	280	285
Ser	Thr	Asn	Arg	Gly	Cys	Lys	Ala	Ile	Tyr	Ala	Ser	Gly	Gly	Ala	Thr	290	295	300
Ser	Val	Leu	Leu	Arg	Asp	Gly	Met	Thr	Arg	Ala	Pro	Cys	Val	Arg	Phe	305	310	315
Gly	Thr	Ala	Lys	Arg	Ala	Ala	Glu	Leu	Lys	Phe	Phe	Val	Glu	Asp	Pro	325	330	335
Val	Lys	Phe	Glu	Thr	Leu	Ala	Ala	Val	Phe	Asn	Gln	Ser	Ser	Arg	Phe	340	345	350
Ala	Arg	Leu	Gln	Arg	Ile	Gln	Cys	Ala	Ile	Ala	Gly	Lys	Asn	Leu	Tyr	355	360	365
Met	Arg	Phe	Val	Cys	Ser	Thr	Gly	Asp	Ala	Met	Gly	Met	Asn	Met	Val	370	375	380
Ser	Lys	Gly	Val	Gln	Asn	Val	Leu	Asp	Tyr	Leu	Gln	Asn	Glu	Tyr	Pro	385	390	395

Asp Met Asp Val Ile Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys  
 405 410 415

Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys  
 420 425 430

Glu Ala Ile Ile Thr Glu Glu Val Val Lys Lys Val Leu Lys Thr Glu  
 435 440 445

Val Ala Ala Leu Val Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser  
 450 455 460

Ala Met Ala Gly Ala Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile  
 465 470 475 480

Val Ser Ala Val Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Ile  
 485 490 495

Glu Ser Ser His Cys Ile Thr Met Met Glu Ala Val Asn Asp Gly Lys  
 500 505 510

Asp Leu His Val Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val  
 515 520 525

Gly Gly Gly Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu  
 530 535 540

Gly Val Lys Gly Ala Asn Arg Glu Val Pro Gly Ser Asn Ala Arg Leu  
 545 550 555 560

Leu Ala Thr Ile Val Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu  
 565 570 575

Met Ser Ala Ile Ser Ala Gly Gln Leu Val Lys Ser His Met Lys Tyr  
 580 585 590

Asn Arg Ser Thr Lys Asp Val Thr Lys Ala Ser Ser  
 595 600

<210> 244  
 <211> 601  
 <212> PRT  
 <213> Catharanthus roseus

<400> 244

Met Asp Ser Arg Arg Arg Ser Pro Thr Val Thr Ala Lys Ala Ala Ala

1		5		10		15											
Gly	Glu	Leu	Pro	Leu	Ala	Pro	His	Glu	Gly	Gln	Asn	Gln	Gln	Pro	Ser		
			20					25					30				
Ile	Pro	Arg	Ser	Ser	Asp	Val	Leu	Pro	Leu	Pro	Leu	Tyr	Leu	Ala	Asn		
		35					40					45					
Gly	Val	Phe	Phe	Thr	Leu	Phe	Phe	Ser	Val	Met	Tyr	Phe	Leu	Leu	Thr		
	50					55					60						
Arg	Trp	Arg	Glu	Lys	Ile	Arg	Asn	Ala	Thr	Pro	Leu	His	Val	Val	Thr		
65					70					75					80		
Leu	Ser	Glu	Leu	Ala	Ala	Leu	Ala	Ser	Leu	Ile	Ala	Ser	Val	Ile	Tyr		
				85					90					95			
Leu	Val	Ser	Phe	Phe	Gly	Leu	Asp	Phe	Val	Gln	Ser	Leu	Ile	Tyr	Lys		
			100					105					110				
Pro	Asn	Asn	Glu	Gly	Trp	Glu	Ile	Glu	Glu	Glu	Ile	Leu	Met	Val	Glu		
		115					120					125					
Asp	Ser	Arg	Asn	Gly	Thr	Asn	Cys	Thr	Thr	Leu	Gly	Cys	Ala	Val	Pro		
	130					135					140						
Pro	Pro	Ser	Val	Pro	Lys	Ile	Ala	Pro	Val	Val	Pro	Gln	Gln	Pro	Ser		
145					150					155					160		
Lys	Met	Val	Ile	Ile	Glu	Lys	Pro	Ala	Pro	Leu	Ile	Thr	Pro	Gln	Asn		
				165					170					175			
Ser	Glu	Glu	Asp	Glu	Asp	Ile	Ile	Lys	Ala	Val	Val	Ala	Gly	Lys	Ile		
			180					185					190				
Pro	Ser	Tyr	Ser	Leu	Glu	Ser	Lys	Leu	Gly	Asp	Cys	Lys	Arg	Ala	Ala		
		195					200					205					
Gly	Ile	Arg	Arg	Glu	Ala	Leu	Gln	Arg	Ile	Thr	Gly	Lys	Ser	Leu	Glu		
	210					215					220						
Gly	Leu	Pro	Leu	Glu	Gly	Phe	Asp	Tyr	Ala	Ser	Ile	Leu	Gly	Gln	Cys		
225					230					235					240		
Cys	Glu	Met	Pro	Val	Gly	Tyr	Val	Gln	Leu	Pro	Val	Gly	Ile	Ala	Gly		
				245					250					255			



Pro Leu Leu Leu Asp Gly Arg Glu Tyr Met Leu Pro Met Ala Thr Thr  
260 265 270

Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala Ile Leu  
275 280 285

Ala Ser Gly Gly Ala Asn Ser Val Leu Leu Arg Asp Gly Met Thr Arg  
290 295 300

Ala Pro Val Val Arg Phe Gly Thr Ala Lys Arg Ala Ala Glu Leu Lys  
305 310 315 320

Phe Tyr Met Glu Asp Thr Gln Asn Phe Glu Thr Ile Ser Val Val Phe  
325 330 335

Asn Lys Ser Ser Arg Phe Ala Lys Leu Gln Ser Val Gln Cys Ala Ile  
340 345 350

Ala Gly Lys Asn Leu Tyr Ile Arg Phe Ser Cys Ser Thr Gly Asp Ala  
355 360 365

Met Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val Leu Glu Phe  
370 375 380

Leu Gln Thr Asp Tyr Pro Asp Met Asp Val Leu Gly Ile Ser Gly Asn  
385 390 395 400

Phe Cys Ala Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg  
405 410 415

Gly Lys Ser Val Val Cys Glu Ala Ile Ile Lys Glu Glu Ile Val Lys  
420 425 430

Thr Val Leu Lys Thr Glu Val Ala Ala Leu Ile Glu Leu Asn Met Val  
435 440 445

Lys Asn Leu Ala Gly Ser Ala Ile Ala Gly Ala Leu Gly Gly Phe Asn  
450 455 460

Ala His Ala Ser Asn Ile Val Ser Ala Ile Phe Ile Ala Thr Gly Gln  
465 470 475 480

Asp Pro Ala Gln Asn Val Glu Ser Ser Gln Cys Ile Thr Met Met Glu  
485 490 495

Ala Val Asn Asp Gly Lys Asp Leu His Ile Ser Val Thr Met Pro Ser  
500 505 510

Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ser  
515 520 525

Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala Ser Lys Asp Ser Pro  
530 535 540

Gly Ala Asn Ser Arg Leu Leu Ala Thr Ile Val Ala Gly Ser Val Leu  
545 550 555 560

Ala Gly Glu Leu Ser Leu Met Ser Ala Ile Ser Ala Gly Gln Leu Val  
565 570 575

Arg Ser His Met Lys Tyr Asn Arg Ser Ser Lys Asp Ile Thr Asn Ile  
580 585 590

Ala Ser Ser Gln Leu Glu Ser Asp Ser  
595 600

<210> 245  
<211> 586  
<212> PRT  
<213> Hevea brasiliensis

<400> 245

Met Asp Glu Val Arg Arg Arg Pro Pro Lys His Ile Val Arg Lys Asp  
1 5 10 15

His Asp Gly Glu Val Leu Asn Ser Phe Ser His Gly His His Leu Pro  
20 25 30

Pro Leu Lys Pro Ser Asp Tyr Ser Leu Pro Leu Ser Leu Tyr Leu Ala  
35 40 45

Asn Ala Leu Val Phe Ser Leu Phe Phe Ser Val Ala Tyr Phe Leu Leu  
50 55 60

His Arg Trp Arg Glu Lys Ile Arg Lys Ser Thr Pro Leu His Ile Val  
65 70 75 80

Thr Phe Pro Glu Ile Ala Ala Leu Ile Cys Leu Val Ala Ser Val Ile  
85 90 95

Tyr Leu Leu Gly Phe Phe Gly Ile Gly Phe Val His Ser Phe Ser Arg

100					105					110					
Ala	Ser	Thr	Asp	Ser	Trp	Asp	Val	Glu	Glu	Tyr	Asp	Asp	Asp	Asn	Ile
		115					120					125			
Ile	Ile	Lys	Glu	Asp	Thr	Arg	Pro	Thr	Gly	Ala	Cys	Ala	Ala	Pro	Ser
	130					135					140				
Leu	Asp	Cys	Ser	Leu	Ser	Leu	Pro	Thr	Lys	Ile	His	Ala	Pro	Ile	Val
145					150					155					160
Ser	Thr	Thr	Thr	Thr	Ser	Thr	Leu	Ser	Asp	Asp	Asp	Glu	Gln	Ile	Ile
				165					170					175	
Lys	Ser	Val	Val	Ser	Gly	Ser	Ile	Pro	Ser	Tyr	Ser	Leu	Glu	Ser	Lys
			180					185					190		
Leu	Gly	Asn	Cys	Lys	Arg	Ala	Ala	Leu	Ile	Arg	Arg	Glu	Thr	Leu	Gln
		195					200					205			
Arg	Met	Ser	Gly	Arg	Ser	Leu	Glu	Gly	Leu	Pro	Leu	Asp	Gly	Phe	Asp
	210					215					220				
Tyr	Glu	Ser	Ile	Leu	Gly	Gln	Cys	Cys	Glu	Met	Ala	Ile	Gly	Tyr	Val
225					230					235					240
Gln	Ile	Pro	Val	Gly	Ile	Ala	Gly	Pro	Leu	Leu	Leu	Asp	Gly	Lys	Glu
				245					250					255	
Tyr	Thr	Val	Pro	Met	Ala	Thr	Thr	Glu	Gly	Cys	Leu	Val	Ala	Ser	Ala
			260					265					270		
Asn	Arg	Gly	Cys	Lys	Ala	Ile	Tyr	Ala	Ser	Gly	Gly	Ala	Thr	Ser	Val
		275					280					285			
Leu	Leu	Arg	Asp	Gly	Met	Thr	Arg	Ala	Pro	Val	Val	Arg	Phe	Pro	Thr
	290					295					300				
Ala	Lys	Arg	Ala	Ala	Asp	Leu	Lys	Phe	Phe	Met	Glu	Asp	Pro	Asp	Asn
305					310					315					320
Phe	Asp	Thr	Ile	Ala	Val	Val	Phe	Asn	Lys	Ser	Ser	Arg	Phe	Ala	Arg
				325					330					335	
Leu	Gln	Ser	Val	Gln	Cys	Ala	Ile	Ala	Gly	Lys	Asn	Leu	Tyr	Met	Arg
			340					345					350		

Phe Ser Cys Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys  
 355 360 365

Ala Val Gln Asn Val Ile Asp Tyr Leu Gln Asn Asp Phe Pro Asp Met  
 370 375 380

Asp Val Ile Gly Leu Thr Gly Asn Phe Cys Ala Asp Lys Lys Ala Ala  
 385 390 395 400

Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala  
 405 410 415

Ile Ile Lys Glu Glu Val Val Lys Lys Val Leu Lys Thr Asn Val Ala  
 420 425 430

Ala Leu Val Glu Leu Asn Met Ile Lys Asn Leu Thr Gly Ser Ala Val  
 435 440 445

Ala Gly Ser Leu Gly Gly Phe Asn Ala His Ala Ser Asn Met Val Thr  
 450 455 460

Ala Val Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser  
 465 470 475 480

Ser His Cys Ile Thr Met Met Glu Ala Val Asn Asp Gly Lys Asp Leu  
 485 490 495

His Ile Ser Val Ser Met Pro Ser Ile Glu Leu Gly Thr Val Gly Gly  
 500 505 510

Gly Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val  
 515 520 525

Lys Gly Ala Ser Lys Asp Ser Pro Gly Ser Asn Ser Arg Leu Leu Ala  
 530 535 540

Thr Ile Val Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu Met Ser  
 545 550 555 560

Ala Ile Ala Ala Gly Gln Leu Val Asn Ser His Met Lys Tyr Asn Arg  
 565 570 575

Ser Ala Lys Asp Val Ser Lys Ile Thr Phe  
 580 585

<210> 246  
 <211> 428  
 <212> PRT  
 <213> *Pseudomonas mevalonii*

<400> 246

Met Ser Leu Asp Ser Arg Leu Pro Ala Phe Arg Asn Leu Ser Pro Ala  
 1 5 10 15

Ala Arg Leu Asp His Ile Gly Gln Leu Leu Gly Leu Ser His Asp Asp  
 20 25 30

Val Ser Leu Leu Ala Asn Ala Gly Ala Leu Pro Met Asp Ile Ala Asn  
 35 40 45

Gly Met Ile Glu Asn Val Ile Gly Thr Phe Glu Leu Pro Tyr Ala Val  
 50 55 60

Ala Ser Asn Phe Gln Ile Asn Gly Arg Asp Val Leu Val Pro Leu Val  
 65 70 75 80

Val Glu Glu Pro Ser Ile Val Ala Ala Ala Ser Tyr Met Ala Lys Leu  
 85 90 95

Ala Arg Ala Asn Gly Gly Phe Thr Thr Ser Ser Ser Ala Pro Leu Met  
 100 105 110

His Ala Gln Val Gln Ile Val Gly Ile Gln Asp Pro Leu Asn Ala Arg  
 115 120 125

Leu Ser Leu Leu Arg Arg Lys Asp Glu Ile Ile Glu Leu Ala Asn Arg  
 130 135 140

Lys Asp Gln Leu Leu Asn Ser Leu Gly Gly Gly Cys Arg Asp Ile Glu  
 145 150 155 160

Val His Thr Phe Ala Asp Thr Pro Arg Gly Pro Met Leu Val Ala His  
 165 170 175

Leu Ile Val Asp Val Arg Asp Ala Met Gly Ala Asn Thr Val Asn Thr  
 180 185 190

Met Ala Glu Ala Val Ala Pro Leu Met Glu Ala Ile Thr Gly Gly Gln  
 195 200 205

Val Arg Leu Arg Ile Leu Ser Asn Leu Ala Asp Leu Arg Leu Ala Arg

210	215	220
Ala Gln Val Arg Ile Thr Pro Gln Gln Leu Glu Thr Ala Glu Phe Ser		
225	230	235 240
Gly Glu Ala Val Ile Glu Gly Ile Leu Asp Ala Tyr Ala Phe Ala Ala		
	245	250 255
Val Asp Pro Tyr Arg Ala Ala Thr His Asn Lys Gly Ile Met Asn Gly		
	260	265 270
Ile Asp Pro Leu Ile Val Ala Thr Gly Asn Asp Trp Arg Ala Val Glu		
	275	280 285
Ala Gly Ala His Ala Tyr Ala Cys Arg Ser Gly His Tyr Gly Ser Leu		
	290	295 300
Thr Thr Trp Glu Lys Asp Asn Asn Gly His Leu Val Gly Thr Leu Glu		
	305	310 315 320
Met Pro Met Pro Val Gly Leu Val Gly Gly Ala Thr Lys Thr His Pro		
	325	330 335
Leu Ala Gln Leu Ser Leu Arg Ile Leu Gly Val Lys Thr Ala Gln Ala		
	340	345 350
Leu Ala Glu Ile Ala Val Ala Val Gly Leu Ala Gln Asn Leu Gly Ala		
	355	360 365
Met Arg Ala Leu Ala Thr Glu Gly Ile Gln Arg Gly His Met Ala Leu		
	370	375 380
His Ala Arg Asn Ile Ala Val Val Ala Gly Ala Arg Gly Asp Glu Val		
	385	390 395 400
Asp Trp Val Ala Arg Gln Leu Val Glu Tyr His Asp Val Arg Ala Asp		
	405	410 415
Arg Ala Val Ala Leu Leu Lys Gln Lys Arg Gly Gln		
	420	425

<210> 247  
 <211> 592  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 247

Met Asp Leu Arg Arg Arg Pro Pro Lys Pro Pro Val Thr Asn Asn Asn  
 1 5 10 15  
 Asn Ser Asn Gly Ser Phe Arg Ser Tyr Gln Pro Arg Thr Ser Asp Asp  
 20 25 30  
 Asp His Arg Arg Arg Ala Thr Thr Ile Ala Pro Pro Pro Lys Ala Ser  
 35 40 45  
 Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr  
 50 55 60  
 Leu Phe Phe Ser Val Ala Tyr Tyr Leu Leu His Arg Trp Arg Asp Lys  
 65 70 75 80  
 Ile Arg Tyr Asn Thr Pro Leu His Val Val Thr Ile Thr Glu Leu Gly  
 85 90 95  
 Ala Ile Ile Ala Leu Ile Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe  
 100 105 110  
 Gly Ile Asp Phe Val Gln Ser Phe Ile Ser Arg Ala Ser Gly Asp Ala  
 115 120 125  
 Trp Asp Leu Ala Asp Thr Ile Asp Asp Asp Asp His Arg Leu Val Thr  
 130 135 140  
 Cys Ser Pro Pro Thr Pro Ile Val Ser Val Ala Lys Leu Pro Asn Pro  
 145 150 155 160  
 Glu Pro Ile Val Thr Glu Ser Leu Pro Glu Glu Asp Glu Glu Ile Val  
 165 170 175  
 Lys Ser Val Ile Asp Gly Val Ile Pro Ser Tyr Ser Leu Glu Ser Arg  
 180 185 190  
 Leu Gly Asp Cys Lys Arg Ala Ala Ser Ile Arg Arg Glu Ala Leu Gln  
 195 200 205  
 Arg Val Thr Gly Arg Ser Ile Glu Gly Leu Pro Leu Asp Gly Phe Asp  
 210 215 220  
 Tyr Glu Ser Ile Leu Gly Gln Cys Cys Glu Met Pro Val Gly Tyr Ile  
 225 230 235 240

Gln Ile Pro Val Gly Ile Ala Gly Pro Leu Leu Leu Asp Gly Tyr Glu  
 245 250 255  
 Tyr Ser Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr  
 260 265 270  
 Asn Arg Gly Cys Lys Ala Met Phe Ile Ser Gly Gly Ala Thr Ser Thr  
 275 280 285  
 Val Leu Lys Asp Gly Met Thr Arg Ala Pro Val Val Arg Phe Ala Ser  
 290 295 300  
 Ala Arg Arg Ala Ser Glu Leu Lys Phe Phe Leu Glu Asn Pro Glu Asn  
 305 310 315 320  
 Phe Asp Thr Leu Ala Val Val Phe Asn Arg Ser Ser Arg Phe Ala Arg  
 325 330 335  
 Leu Gln Ser Val Lys Cys Thr Ile Ala Gly Lys Asn Ala Tyr Val Arg  
 340 345 350  
 Phe Cys Cys Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys  
 355 360 365  
 Gly Val Gln Asn Val Leu Glu Tyr Leu Thr Asp Asp Phe Pro Asp Met  
 370 375 380  
 Asp Val Ile Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala  
 385 390 395 400  
 Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala  
 405 410 415  
 Val Ile Arg Gly Glu Ile Val Asn Lys Val Leu Lys Thr Ser Val Ala  
 420 425 430  
 Ala Leu Val Glu Leu Asn Met Leu Lys Asn Leu Ala Gly Ser Ala Val  
 435 440 445  
 Ala Gly Ser Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Ser  
 450 455 460  
 Ala Val Phe Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser  
 465 470 475 480  
 Ser Gln Cys Ile Thr Met Met Glu Ala Ile Asn Asp Gly Lys Asp Ile



485										490					495				
His	Ile	Ser	Val	Thr	Met	Pro	Ser	Ile	Glu	Val	Gly	Thr	Val	Gly	Gly				
			500					505					510						
Gly	Thr	Gln	Leu	Ala	Ser	Gln	Ser	Ala	Cys	Leu	Asn	Leu	Leu	Gly	Val				
		515					520				525								
Lys	Gly	Ala	Ser	Thr	Glu	Ser	Pro	Gly	Met	Asn	Ala	Arg	Arg	Leu	Ala				
	530					535					540								
Thr	Ile	Val	Ala	Gly	Ala	Val	Leu	Ala	Gly	Glu	Leu	Ser	Leu	Met	Ser				
545					550					555					560				
Ala	Ile	Ala	Ala	Gly	Gln	Leu	Val	Arg	Ser	His	Met	Lys	Tyr	Asn	Arg				
				565					570					575					
Ser	Ser	Arg	Asp	Ile	Ser	Gly	Ala	Thr	Thr	Thr	Thr	Thr	Thr	Thr	Thr	Thr	Thr	Thr	
			580					585						590					
<210> 248																			
<211> 421																			
<212> PRT																			
<213> Aeropyrum pernix																			
<400> 248																			
Met	Gly	Ser	Ser	Ser	Gly	Gln	Lys	Pro	Arg	Arg	Leu	Glu	Asp	Leu	Val				
1				5					10					15					
Asp	Lys	Leu	Ala	Ser	Gly	Ser	Leu	Ser	His	Ser	Arg	Leu	Glu	Lys	Glu				
			20					25					30						
Leu	Gly	Asn	Ala	Asn	Glu	Ala	Ala	Leu	Val	Arg	Arg	Leu	Tyr	Leu	Glu				
		35					40					45							
Arg	Leu	Thr	Gly	Ala	Ser	Leu	Ser	Ser	Val	Ala	Ser	Thr	Ile	Leu	Asp				
	50					55					60								
Phe	Gln	Glu	Leu	Tyr	Gly	Arg	Asn	Ile	Glu	Asn	Pro	Ile	Gly	Ala	Val				
65					70					75					80				
Gln	Val	Pro	Val	Gly	Val	Ala	Gly	Pro	Leu	Arg	Ile	Asn	Gly	Asp	Tyr				
				85					90					95					
Ala	Arg	Gly	Asp	Phe	Tyr	Ile	Pro	Leu	Ala	Thr	Thr	Glu	Gly	Ala	Leu				
			100					105						110					

Val Ala Ser Val Asn Arg Gly Ala Lys Ala Ile Thr Leu Ser Gly Gly  
115 120 125  
Ala Arg Ala Lys Val Ile Lys Asp Gly Met Thr Arg Ala Pro Leu Leu  
130 135 140  
Trp Thr Pro Ser Val Tyr Glu Ala His Arg Leu Ala Met Trp Val Glu  
145 150 155 160  
Asp Arg Ile Glu Asp Leu Arg Ser Val Val Ala Gly Val Thr Arg His  
165 170 175  
Gly Arg Leu Gln His Ile Tyr Pro Tyr Ile Ile Gly Asn Leu Val Trp  
180 185 190  
Leu Arg Leu Ser Phe Ser Thr Gly Asp Ala Met Gly Met Asn Met Val  
195 200 205  
Thr Ile Ser Ser Asp Arg Ile Cys Arg Tyr Ile Glu Glu Asn Tyr Asp  
210 215 220  
Gly Asp Ala Lys Cys Ile Ala Leu Ser Gly Asn Met Cys Thr Asp Lys  
225 230 235 240  
Lys Pro Ala Ala Ile Asn Lys Ile Leu Gly Arg Gly Lys Tyr Val Val  
245 250 255  
Ala Glu Ala Val Ile Lys Gly Glu Val Val Lys Asn Val Leu Lys Thr  
260 265 270  
Thr Pro Gln Asn Ile Asn Leu Val Asn Val Thr Lys Asn Leu Leu Gly  
275 280 285  
Ser Ala Ala Ala Gly Ser His Ser Phe Asn Ala His Phe Ala Asn Ile  
290 295 300  
Ile Ala Ala Ile Phe Ile Ala Thr Gly Gln Asp Ala Ala Gln Val Val  
305 310 315 320  
Glu Ser Ser Met Gly Tyr Thr Trp Thr Glu Val Arg Gly Glu Asp Leu  
325 330 335  
Tyr Ile Ser Val Thr Leu Pro Ser Leu Glu Val Gly Thr Val Gly Gly  
340 345 350

Gly Thr Arg Leu Pro Thr Gln Arg Glu Leu Leu Ala Leu Leu Gly Val  
 355 360 365

Ala Gly Gly Gly Asn Pro Pro Gly Ser Asn Ala Leu Lys Leu Ala Glu  
 370 375 380

Ile Ile Ala Ser Ala Val Leu Ala Gly Glu Leu Asn Leu Leu Ser Ala  
 385 390 395 400

Ile Ala Ala Gly Gln Leu Ala Arg Ala His Glu Leu Leu Gly Arg Gly  
 405 410 415

Gly Leu Lys Ile Ser  
 420

<210> 249  
 <211> 1068  
 <212> PRT  
 <213> Aspergillus terreus

<400> 249

Met Asp Pro Val Val Arg Lys Pro Asp Pro Gly Gly Val Gln His Arg  
 1 5 10 15

Val Thr Lys Ala Leu Arg Ala Ile Val Gly His Ala Cys Arg His Pro  
 20 25 30

Ile His Thr Leu Leu Val Thr Ala Leu Thr Ala Ala Thr Thr His Leu  
 35 40 45

His Val Leu Glu Gly Thr Tyr Gln Ala Thr His Arg Glu Ala Ser Ala  
 50 55 60

Trp Lys Trp Gln Ile Asp Asp Arg Pro Lys Val Pro Glu Asp Gly Gln  
 65 70 75 80

Ser Asp Phe His Trp Ala Leu Val Thr Leu Asp Leu Pro Gly Ala Ser  
 85 90 95

Val Asp Ala Ser Ile Pro Phe Leu Ser Asn Thr Leu Ser Gly Phe Leu  
 100 105 110

Gly Ala Glu Gln Thr Thr Pro Thr Pro Asp Ser Ser Pro Ser Pro Asp  
 115 120 125

His Ser Ala Leu Thr Phe Arg Val Pro Tyr Ser Gln Leu Asp Gly Phe  
 130 135 140

Leu Gln Ala Val Glu Ile Ile Pro Ser Glu Lys Glu Asp Asp Ser Trp  
 145 150 155 160

Arg Leu Arg Ser Pro Arg Glu Glu Gly Ser Pro Arg Ser Leu Gly His  
 165 170 175

Trp Leu Gly Ser Ser Trp Leu Ser Phe Leu His Arg Val His His Ala  
 180 185 190

Glu Thr Val Asp Leu Val Ile Ile Gly Leu Ser Tyr Leu Ala Met Asn  
 195 200 205

Met Thr Val Val Ser Leu Phe Arg Val Met Arg His Leu Gly Ser Arg  
 210 215 220

Phe Trp Leu Ala Ala Ser Val Leu Leu Ser Gly Ala Phe Ala Phe Val  
 225 230 235 240

Leu Gly Leu Gly Ile Thr Thr Thr Cys Asp Val Pro Val Asp Met Leu  
 245 250 255

Leu Leu Phe Glu Gly Ile Pro Tyr Leu Val Leu Thr Val Gly Phe Glu  
 260 265 270

Lys Pro Ile Gln Leu Thr Arg Ala Val Leu Cys Val Ser Glu Glu Leu  
 275 280 285

Trp Gly Gly Gly Gln Arg Gln Val Pro Asn Gly Ala Ser Ser Asp Asp  
 290 295 300

Ser Arg Gln Asn Gln Leu Ile Pro Asn Ile Ile Gln Leu Ala Val Asp  
 305 310 315 320

Arg Glu Gly Trp Tyr Ile Val Arg Ser Tyr Leu Leu Glu Ile Gly Ala  
 325 330 335

Leu Ala Leu Gly Ala Val Leu Arg Pro Lys Asp Ser Leu Gly His Phe  
 340 345 350

Cys Phe Leu Ala Ala Trp Thr Leu Leu Ile Asp Ala Val Leu Leu Phe  
 355 360 365

Thr Phe Tyr Ala Thr Ile Leu Cys Val Lys Leu Glu Ile Thr Arg Ile  
 370 375 380

Arg Ser Pro Gly Gly Leu Gly Gln Val Asn Ala Lys His Pro Ser Gly  
 385 390 395 400

Ile Phe Gly His Lys Val Lys Ser Thr Asn Ile Thr Trp Trp Lys Leu  
 405 410 415

Leu Thr Val Gly Gly Phe Val Leu Cys His Phe Leu Gln Leu Ser Pro  
 420 425 430

Phe Phe Tyr Arg Val Met Gly Glu Tyr Met Ala Asn Gly Thr Leu Pro  
 435 440 445

Pro Thr Ala Val Ser Pro Phe Lys Glu Ala Ala Asn Gly Leu Asn Glu  
 450 455 460

Ile Tyr Leu Thr Ala Arg Val Glu Gly Phe Glu Thr Arg Val Thr Val  
 465 470 475 480

Leu Pro Pro Leu Gln Tyr Val Leu Glu Ser Ala Gly Phe Asn Ile Ser  
 485 490 495

Ala Thr Lys Arg Ser Thr Phe Asp Gly Val Leu Asp Gly Leu Glu Ser  
 500 505 510

Pro Leu Gly Arg Leu Cys Leu Met Gly Ala Leu Val Val Ser Leu Val  
 515 520 525

Leu Asn Asn His Leu Ile His Ala Ala Arg Trp His Ala Trp Pro Gln  
 530 535 540

Ala Arg Glu Ser Ala Val Pro Asp Gly Ser Tyr Leu Ser Val Pro Cys  
 545 550 555 560

Ser Ala Thr Ala Pro Glu Val Cys Thr Arg Pro Pro Glu Glu Thr Glu  
 565 570 575

Ala Leu Leu Lys Ser Asn Gln Ala Glu Ser Leu Thr Asp Asp Glu Leu  
 580 585 590

Val Glu Leu Cys Leu Arg Gly Lys Ile Ala Gly Tyr Ser Leu Glu Lys  
 595 600 605

Thr Leu Glu Arg Ile Ala Ala Gly Ser Ser Arg Ser Val Thr Arg Leu  
 610 615 620

Glu Ala Phe Thr Arg Ala Val Arg Ile Arg Arg Ala Ala Val Ser Lys  
 625 630 635 640  
 Thr Pro Ser Thr Gln Asn Leu Cys Ser Gly Leu Ala Glu Ser Leu Leu  
 645 650 655  
 Pro Tyr Arg Asp Tyr Asn Tyr Glu Leu Val His Gly Ala Cys Cys Glu  
 660 665 670  
 Asn Val Val Gly Tyr Leu Pro Leu Pro Leu Gly Val Ala Gly Pro Met  
 675 680 685  
 Val Ile Asp Gly Gln Ala Leu Phe Ile Pro Met Ala Thr Thr Glu Gly  
 690 695 700  
 Val Leu Val Ala Ser Ala Ser Arg Gly Cys Lys Ala Ile Asn Ala Gly  
 705 710 715 720  
 Gly Gly Ala Thr Thr Met Leu Lys Gly Asp Gly Met Thr Arg Gly Pro  
 725 730 735  
 Cys Leu Arg Phe Pro Ser Ala Gln Arg Ala Ala Glu Ala Gln Arg Trp  
 740 745 750  
 Val Glu Ser Pro Leu Gly His Glu Val Leu Ala Ala Ala Phe Asn Ala  
 755 760 765  
 Thr Ser Arg Phe Ala Arg Leu Gln Thr Leu Thr Val Ala Gln Ala Gly  
 770 775 780  
 Ile Tyr Leu Tyr Ile Arg Phe Arg Thr Thr Thr Gly Asp Ala Met Gly  
 785 790 795 800  
 Met Asn Met Ile Ser Lys Gly Val Glu Lys Ala Leu Glu Ala Met Ala  
 805 810 815  
 Ala Glu Gly Gly Phe Pro Asp Met His Thr Val Thr Leu Ser Gly Asn  
 820 825 830  
 Phe Cys Ser Asp Lys Lys Ser Ala Ala Ile Asn Trp Ile Gly Gly Arg  
 835 840 845  
 Gly Lys Ser Val Ile Ala Glu Ala Thr Ile Pro Ala Glu Thr Val Arg  
 850 855 860  
 Gln Val Leu Lys Thr Asp Val Asp Ala Leu Val Glu Leu Asn Thr Ala

865	870	875	880
Lys Asn Leu Val Gly Ser Ala Met Ala Gly Ser Leu Gly Gly Phe Asn	885	890	895
Ala His Ala Ser Asn Leu Val Gln Ala Val Phe Leu Ala Thr Gly Gln	900	905	910
Asp Pro Ala Gln Asn Val Glu Ser Ser Ser Cys Ile Thr Thr Met Lys	915	920	925
Asn Ile Asp Gly Asn Leu His Ile Ala Val Ser Met Pro Ser Met Glu	930	935	940
Val Gly Thr Ile Gly Gly Gly Thr Ile Leu Glu Ala Gln Gly Ala Met	945	950	955
Leu Asp Leu Leu Gly Val Arg Gly Ala His Ser Thr Glu Pro Gly Ala	965	970	975
Asn Ala Arg Arg Leu Ala Arg Ile Val Ala Ala Ala Val Leu Ala Gly	980	985	990
Glu Leu Ser Thr Cys Ala Ala Leu Ala Ala Gly His Leu Val Asn Ala	995	1000	1005
His Met Gln His Asn Arg Thr Ser Lys Asp Ala Ile Ser Gly Thr	1010	1015	1020
Glu Tyr Gly Ala Ile Arg Thr Pro Val Tyr Val Val Ile Leu Glu	1025	1030	1035
His Ala Gly Asp Ile His Phe Val Gln Ile Glu Tyr Lys Asn Thr	1040	1045	1050
Tyr Leu Arg Arg Lys Val Pro Thr Leu Ser Cys Asn Leu Gly Arg	1055	1060	1065
<210> 250			
<211> 560			
<212> PRT			
<213> Oryza sativa			
<400> 250			
Met Glu Val Arg Arg Arg Ala Pro Leu Pro Pro Pro Pro Gly Arg Val	1	5	10
			15

Gln Ala Gly Asp Ala Leu Pro Leu Pro Ile Arg His Thr Asn Leu Ile  
 20 25 30

Phe Ser Ala Leu Phe Ala Ala Ser Leu Ala Tyr Leu Met Arg Arg Trp  
 35 40 45

Arg Glu Lys Ile Arg Ser Ser Thr Pro Leu His Val Val Gly Leu Ala  
 50 55 60

Glu Met Leu Ala Ile Phe Gly Leu Val Ala Ser Leu Ile Tyr Leu Leu  
 65 70 75 80

Ser Phe Phe Gly Ile Ala Phe Val Gln Ser Ile Val Ser Ser Ser Asp  
 85 90 95

Asp Glu Glu Glu Asp Phe Leu Val Gly Pro Ala Arg Gly Ser Ser Ala  
 100 105 110

Ala Ala Ala Val Ala Pro Arg Ala Pro Ser Ser Pro Ala Gln Cys Ser  
 115 120 125

Leu Leu Gly Ser Pro His Asp Asp Ala Ala Arg Glu Arg Met Pro Glu  
 130 135 140

Glu Asp Glu Glu Ile Val Ser Ser Val Val Ala Gly Lys Val Pro Ser  
 145 150 155 160

Tyr Val Leu Glu Thr Lys Leu Gly Asp Cys Arg Arg Ala Ala Gly Ile  
 165 170 175

Arg Arg Glu Ala Val Arg Arg Ile Thr Gly Arg Gln Ile Glu Gly Leu  
 180 185 190

Pro Leu Asp Gly Phe Asp Tyr Ala Ser Ile Leu Gly Gln Cys Cys Glu  
 195 200 205

Leu Pro Val Gly Tyr Val Gln Leu Pro Val Gly Ile Ala Gly Pro Leu  
 210 215 220

Leu Leu Asp Gly Gln Arg Phe Tyr Val Pro Met Ala Thr Thr Glu Gly  
 225 230 235 240

Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala Ile Ala Glu Ser  
 245 250 255



Gly Gly Ala Val Ser Val Val Leu Arg Asp Gly Met Thr Arg Ala Pro  
260 265 270

Val Ala Arg Leu Pro Thr Ala Arg Arg Ala Ala Glu Leu Lys Ala Phe  
275 280 285

Leu Glu Asp Ser Val Asn Phe Asn Thr Leu Ser Met Val Phe Asn Arg  
290 295 300

Ser Ser Arg Phe Ala Arg Leu Gln Gly Val Gln Cys Ala Met Ala Gly  
305 310 315 320

Arg Asn Leu Tyr Met Arg Phe Ser Cys Cys Thr Gly Asp Ala Met Gly  
325 330 335

Met Asn Met Val Ser Lys Gly Glu Gln Asn Val Leu Asp Tyr Leu Gln  
340 345 350

Asp Asp Phe Pro Asp Met Asp Val Ile Ser Ile Ser Gly Asn Phe Cys  
355 360 365

Ser Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys  
370 375 380

Ser Val Val Cys Glu Ala Val Ile Lys Glu Asp Val Val Lys Lys Val  
385 390 395 400

Leu Lys Thr Asn Val Gln Ser Leu Val Glu Leu Asn Val Ile Lys Asn  
405 410 415 •

Leu Ala Gly Ser Ala Val Ala Gly Ala Leu Gly Gly Phe Asn Ala His  
420 425 430

Ala Ser Asn Ile Val Thr Ala Ile Phe Ile Ala Thr Gly Gln Asp Pro  
435 440 445

Ala Gln Asn Val Glu Ser Ser His Cys Ile Thr Met Leu Glu Ala Val  
450 455 460

Asn Asp Gly Arg Asp Leu His Ile Ser Val Thr Met Pro Ser Ile Glu  
465 470 475 480

Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser Gln Ala Ala Cys  
485 490 495

Leu Asp Leu Leu Gly Val Lys Gly Ala Asn Arg Glu Ser Pro Gly Ser

500					505					510					
Asn	Ala	Arg	Leu	Leu	Ala	Thr	Val	Val	Ala	Gly	Gly	Val	Leu	Ala	Gly
		515					520					525			
Glu	Leu	Ser	Leu	Leu	Ser	Ala	Leu	Arg	Ala	Gly	Gln	Leu	Val	Lys	Ser
	530					535					540				
His	Met	Lys	Tyr	Asn	Arg	Ser	Ser	Lys	Asp	Met	Ser	Lys	Val	Ile	Ser
545					550					555					560
<210> 251															
<211> 604															
<212> PRT															
<213> Capsicum annum															
<400> 251															
Met	Asp	Val	Arg	Arg	Arg	Ser	Glu	Glu	Ala	Val	Tyr	Ser	Ser	Lys	Val
1				5					10					15	
Phe	Ala	Ala	Asp	Glu	Lys	Pro	Leu	Lys	Pro	His	Lys	Gln	Gln	Gln	Glu
			20					25					30		
Glu	Asp	Asn	Thr	Leu	Leu	Ile	Asp	Ala	Ser	Asp	Ala	Leu	Pro	Leu	Pro
		35					40					45			
Leu	Tyr	Phe	Thr	Asn	Gly	Leu	Phe	Phe	Thr	Met	Phe	Phe	Ser	Val	Met
	50					55					60				
Tyr	Phe	Leu	Leu	Ser	Arg	Trp	Arg	Glu	Lys	Ile	Arg	Asn	Ser	Thr	Pro
65					70					75					80
Leu	His	Val	Val	Thr	Leu	Ser	Glu	Leu	Gly	Ala	Ile	Val	Ser	Leu	Ile
				85					90					95	
Ala	Ser	Val	Ile	Tyr	Leu	Leu	Gly	Phe	Phe	Gly	Ile	Gly	Phe	Val	Gln
			100					105					110		
Thr	Phe	Val	Ala	Arg	Gly	Asn	Asn	Asp	Ser	Trp	Asp	Glu	Glu	Asp	Glu
		115					120					125			
Asn	Asp	Glu	Gln	Phe	Ile	Leu	Glu	Glu	Asp	Ser	Arg	Arg	Gly	Pro	Cys
	130					135					140				
Ala	Ala	Ala	Thr	Thr	Leu	Gly	Cys	Ala	Val	Pro	Thr	Pro	Pro	Ala	Lys
145					150					155					160

His Ile Ala Pro Ile Val Pro Gln Gln Pro Ala Val Ser Ile Ala Glu  
 165 170 175

Lys Pro Ala Pro Leu Val Thr Pro Ala Ala Ser Glu Glu Asp Glu Glu  
 180 185 190

Ile Ile Lys Ser Val Val Gln Gly Lys Ile Pro Ser Tyr Ser Leu Glu  
 195 200 205

Ser Lys Leu Gly Asp Cys Lys Arg Ala Ala Ser Ile Arg Lys Glu Val  
 210 215 220

Leu Gln Arg Ile Thr Gly Lys Ser Leu Glu Gly Leu Pro Leu Asp Gly  
 225 230 235 240

Phe Asn Tyr Glu Ser Ile Leu Gly Gln Cys Cys Glu Met Thr Ile Gly  
 245 250 255

Tyr Val Gln Ile Pro Val Gly Ile Ala Gly Pro Leu Leu Leu Asn Gly  
 260 265 270

Arg Glu Tyr Ser Val Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala  
 275 280 285

Ser Thr Asn Arg Gly Cys Lys Ala Ile Tyr Ala Ser Gly Gly Ala Thr  
 290 295 300

Ser Ile Leu Leu Arg Asp Gly Met Thr Arg Ala Pro Cys Val Arg Phe  
 305 310 315 320

Gly Thr Ala Lys Arg Ala Ala Glu Leu Lys Phe Phe Val Glu Asp Pro  
 325 330 335

Ile Asn Phe Glu Thr Leu Ala Asn Val Phe Asn Gln Ser Ser Arg Phe  
 340 345 350

Ala Arg Leu Gln Arg Ile Gln Cys Ala Ile Ala Gly Lys Asn Leu His  
 355 360 365

Met Arg Phe Val Cys Ser Thr Gly Asp Ala Met Gly Met Asn Met Val  
 370 375 380

Ser Lys Gly Val Gln Asn Val Leu Asp Tyr Leu Gln Asn Glu Tyr Ala  
 385 390 395 400

Asp Met Asp Val Ile Gly Ile Ser Ala Asn Phe Cys Ser Asp Lys Lys  
405 410 415

Pro Ala Ala Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys  
420 425 430

Glu Ala Ile Ile Thr Glu Glu Val Val Lys Lys Val Leu Lys Thr Glu  
435 440 445

Val Ala Ala Leu Val Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser  
450 455 460

Ala Leu Ala Gly Ala Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile  
465 470 475 480

Val Ser Ala Val Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Ile  
485 490 495

Glu Ser Ser His Cys Ile Thr Met Met Glu Ala Val Asn Asp Gly Lys  
500 505 510

Asp Leu His Ile Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val  
515 520 525

Gly Gly Gly Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu  
530 535 540

Gly Val Lys Gly Ala Asn Arg Glu Ala Pro Gly Ser Asn Ala Arg Leu  
545 550 555 560

Leu Ala Thr Ile Val Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu  
565 570 575

Met Ser Ala Ile Ser Ala Gly Gln Leu Val Asn Ser His Met Lys Tyr  
580 585 590

Asn Arg Ser Thr Lys Asp Val Thr Lys Ala Ser Ser  
595 600

<210> 252  
<211> 411  
<212> PRT  
<213> Pyrococcus abyssi

<400> 252

Met Lys Thr Leu Asn Val Glu Asp Ile Ile Glu Lys Val Ala Asn Gly  
1 5 10 15

Glu Ile Lys Leu His Gln Val Glu Lys Tyr Val Asn Gly Asp Lys Arg  
 20 25 30

Leu Ala Thr Glu Ile Arg Arg Lys Ala Leu Glu Arg Lys Leu Gly Ile  
 35 40 45

Ser Leu Lys His Ile Gly His Tyr Ser Ile Asp Pro Asn Glu Leu Ile  
 50 55 60

Gly Arg Asn Ile Glu Asn Met Ile Gly Val Val Gln Ile Pro Met Gly  
 65 70 75 80

Val Ala Gly Pro Leu Lys Ile Asn Gly Glu Tyr Ala Lys Gly Glu Phe  
 85 90 95

Tyr Ile Pro Leu Ala Thr Thr Glu Gly Ala Leu Val Ala Ser Val Asn  
 100 105 110

Arg Gly Cys Ser Ala Leu Thr Glu Ala Gly Gly Val Val Thr Thr Ile  
 115 120 125

Leu Asp Asp Lys Met Thr Arg Ala Pro Leu Ile Arg Cys Pro Asn Ala  
 130 135 140

Arg Arg Ala Arg Glu Val Ala Glu Trp Val Lys Glu Asn Leu Asn Tyr  
 145 150 155 160

Leu Gln Glu Lys Ala Val Ala Lys Val Thr Arg His Gly Lys Leu Arg  
 165 170 175

Asp Val Lys Pro Phe Ile Val Gly Asn Asn Leu Tyr Leu Arg Phe Glu  
 180 185 190

Phe Glu Thr Gly Asp Ala Met Gly Met Asn Met Val Thr Ile Ala Ser  
 195 200 205

Glu Glu Ile Met Lys Val Ile Glu Glu Glu Phe Pro Asp Val Arg Tyr  
 210 215 220

Leu Ala Leu Ser Gly Asn Leu Cys Val Asp Lys Lys Pro Asn Ala Val  
 225 230 235 240

Asn Phe Ile Leu Gly Arg Gly Lys Thr Val Val Ala Glu Ala Ile Val  
 245 250 255

Pro Arg Glu Ile Val Glu Lys Lys Leu Lys Thr Thr Pro Glu Leu Ile  
260 265 270

Ala Glu Val Asn Tyr Phe Lys Asn Leu Val Gly Ser Ala Gln Ala Gly  
275 280 285

Ser Tyr Gly Phe Asn Ala His Phe Gly Asn Ile Val Gly Ala Ile Phe  
290 295 300

Leu Ala Thr Gly Gln Asp Glu Ala Gln Ile Thr Glu Gly Ser His Gly  
305 310 315 320

Ile Thr Ile Ala Glu Val Thr Pro Glu Gly Asp Leu Tyr Ile Ser Ile  
325 330 335

Thr Met Pro Ser Leu Glu Ile Gly Thr Val Gly Gly Gly Thr Arg Val  
340 345 350

Pro Thr Gln Arg Glu Ala Leu Ser Ile Met Gly Val Ala Gly Gly Gly  
355 360 365

Asp Pro Pro Gly Val Asn Ala Lys Lys Phe Ala Glu Ile Val Ala Gly  
370 375 380

Ala Val Leu Ala Gly Glu Leu Ser Leu Leu Ala Ala Ile Ala Ala Lys  
385 390 395 400

His Leu Ala Arg Ala His Lys Met Leu Gly Arg  
405 410

<210> 253

<211> 411

<212> PRT

<213> Pyrococcus abyssi

<400> 253

Met Lys Thr Leu Asn Val Glu Asp Ile Ile Glu Lys Val Ala Asn Gly  
1 5 10 15

Glu Ile Lys Leu His Gln Val Glu Lys Tyr Val Asn Gly Asp Lys Arg  
20 25 30

Leu Ala Thr Glu Ile Arg Arg Lys Ala Leu Glu Arg Lys Leu Gly Ile  
35 40 45

Ser Leu Lys His Ile Gly His Tyr Ser Ile Asp Pro Asn Glu Leu Ile

50	55	60
Gly Arg Asn Ile Glu Asn Met Ile Gly Val Val Gln Ile Pro Met Gly 65 70 75 80		
Val Ala Gly Pro Leu Lys Ile Asn Gly Glu Tyr Ala Lys Gly Glu Phe 85 90 95		
Tyr Ile Pro Leu Ala Thr Thr Glu Gly Ala Leu Val Ala Ser Val Asn 100 105 110		
Arg Gly Cys Ser Ala Leu Thr Glu Ala Gly Gly Val Val Thr Thr Ile 115 120 125		
Leu Asp Asp Lys Met Thr Arg Ala Pro Leu Ile Arg Cys Pro Asn Ala 130 135 140		
Arg Arg Ala Arg Glu Val Ala Glu Trp Val Lys Glu Asn Leu Asn Tyr 145 150 155 160		
Leu Gln Glu Lys Ala Val Ala Lys Val Thr Arg His Gly Lys Leu Arg 165 170 175		
Asp Val Lys Pro Phe Ile Val Gly Asn Asn Leu Tyr Leu Arg Phe Glu 180 185 190		
Phe Glu Thr Gly Asp Ala Met Gly Met Asn Met Val Thr Ile Ala Ser 195 200 205		
Glu Glu Ile Met Lys Val Ile Glu Glu Glu Phe Pro Asp Val Arg Tyr 210 215 220		
Leu Ala Leu Ser Gly Asn Leu Cys Val Asp Lys Lys Pro Asn Ala Val 225 230 235 240		
Asn Phe Ile Leu Gly Arg Gly Lys Thr Val Val Ala Glu Ala Ile Val 245 250 255		
Pro Arg Glu Ile Val Glu Lys Lys Leu Lys Thr Thr Pro Glu Leu Ile 260 265 270		
Ala Glu Val Asn Tyr Phe Lys Asn Leu Val Gly Ser Ala Gln Ala Gly 275 280 285		
Ser Tyr Gly Phe Asn Ala His Phe Gly Asn Ile Val Gly Ala Ile Phe 290 295 300		

Leu Ala Thr Gly Gln Asp Glu Ala Gln Ile Thr Glu Gly Ser His Gly  
305 310 315 320

Ile Thr Ile Ala Glu Val Thr Pro Glu Gly Asp Leu Tyr Ile Ser Ile  
325 330 335

Thr Met Pro Ser Leu Glu Ile Gly Thr Val Gly Gly Gly Thr Arg Val  
340 345 350

Pro Thr Gln Arg Glu Ala Leu Ser Ile Met Gly Val Ala Gly Gly Gly  
355 360 365

Asp Pro Pro Gly Val Asn Ala Lys Lys Phe Ala Glu Ile Val Ala Gly  
370 375 380

Ala Val Leu Ala Gly Glu Leu Ser Leu Leu Ala Ala Ile Ala Ala Lys  
385 390 395 400

His Leu Ala Arg Ala His Lys Met Leu Gly Arg  
405 410

<210> 254  
<211> 595  
<212> PRT  
<213> Solanum tuberosum

<400> 254

Met Asp Val Arg Arg Arg Ser Glu Lys Pro Val Tyr Pro Ser Lys Val  
1 5 10 15

Phe Gly Ala Asp Glu Lys Pro Leu Lys Pro His Asn Asn Gln Gln Gln  
20 25 30

Glu Asp Asn Asn Thr Leu Leu Ile Asp Ala Ser Asp Ala Leu Pro Leu  
35 40 45

Pro Leu Tyr Leu Thr Asn Gly Leu Phe Phe Thr Met Phe Phe Ser Val  
50 55 60

Met Tyr Phe Leu Leu Ser Arg Trp Arg Glu Lys Ile Arg Asn Ser Thr  
65 70 75 80

Pro Leu His Val Val Thr Leu Ser Glu Leu Gly Ala Ile Val Ser Leu  
85 90 95



Ile Ala Ser Val Ile Tyr Leu Leu Gly Phe Phe Gly Ile Gly Phe Val  
 100 105 110  
 Gln Thr Phe Val Ser Arg Gly Asn Asn Asp Ser Trp Asp Glu Asn Asp  
 115 120 125  
 Glu Glu Phe Leu Leu Lys Glu Asp Ser Arg Cys Gly Pro Ala Thr Thr  
 130 135 140  
 Leu Gly Cys Ala Ile Pro Ala Pro Pro Ala Arg Gln Ile Ser Pro Met  
 145 150 155 160  
 Ala Pro Pro Gln Pro Ala Met Ser Met Val Glu Lys Pro Ser Pro Leu  
 165 170 175  
 Ile Thr Pro Ala Ser Ser Glu Glu Asp Glu Glu Ile Ile Asn Ser Val  
 180 185 190  
 Val Gln Gly Lys Phe Pro Ser Tyr Ser Leu Val Ile Gln Leu Gly Asp  
 195 200 205  
 Val Ser Ala Ala Ala Ser Leu Arg Lys Glu Val Met Gln Arg Ile Thr  
 210 215 220  
 Gly Lys Ser Leu Glu Gly Leu Pro Leu Glu Gly Phe Thr Tyr Glu Ser  
 225 230 235 240  
 Ile Leu Gly Gln Cys Cys Glu Met Pro Ile Gly Tyr Val Gln Ile Pro  
 245 250 255  
 Val Gly Ile Ala Gly Pro Leu Leu Leu Asn Gly Lys Glu Phe Ser Val  
 260 265 270  
 Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly  
 275 280 285  
 Cys Lys Ala Ile Tyr Ala Ser Gly Gly Ala Thr Cys Ile Val Leu Arg  
 290 295 300  
 Asp Gly Met Thr Arg Ala Pro Cys Val Arg Phe Gly Thr Ala Lys Arg  
 305 310 315 320  
 Ala Ala Glu Leu Lys Phe Phe Val Glu Asp Pro Ile Lys Phe Glu Thr  
 325 330 335  
 Leu Ala Asn Val Phe Asn Gln Ser Ser Arg Phe Gly Arg Leu Gln Arg

340	345	350
Ile Gln Cys Ala Ile Ala Gly Lys Asn Leu Tyr Met Arg Phe Val Cys		
355	360	365
Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Gly Val Gln		
370	375	380
Asn Val Leu Asp Tyr Leu Gln Asn Glu Tyr Pro Asp Met Asp Val Ile		
385	390	395
Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala Val Asn		
	405	410
		415
Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Ile Thr		
	420	425
		430
Glu Glu Val Val Lys Lys Val Leu Lys Thr Glu Val Ala Ala Leu Val		
	435	440
		445
Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser Ala Met Ala Gly Ala		
450	455	460
Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Ser Ala Val Phe		
465	470	475
		480
Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Ile Glu Ser Ser His Cys		
	485	490
		495
Ile Thr Met Met Glu Ala Val Asn Asp Gly Lys Asp Leu His Ile Ser		
	500	505
		510
Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln		
515	520	525
Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala		
530	535	540
Asn Arg Glu Ala Pro Gly Ser Asn Ala Arg Leu Leu Ala Thr Val Val		
545	550	555
		560
Ala Gly Ser Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Ile Ser		
	565	570
		575
Ala Gly Gln Leu Val Asn Ser His Met Lys Tyr Asn Arg Ser Thr Lys		
580	585	590

Ala Ser Ser  
595

<210> 255  
<211> 833  
<212> PRT  
<213> Agrotis ipsilon

<400> 255

Met Lys Val Trp Gly Ala His Gly Glu Phe Cys Ala Arg His Gln Trp  
1 5 10 15

Glu Val Ile Val Ala Thr Leu Ala Leu Leu Ala Cys Ala Ala Ser Val  
20 25 30

Glu Arg Asn Gly Pro Gly Asn Arg Ser Glu His Cys Ala Gly Trp Ala  
35 40 45

Arg Ala Cys Pro Gly Leu Glu Ala Glu Tyr Gln Ala Ala Asp Ala Val  
50 55 60

Ile Met Thr Phe Val Arg Cys Ala Ala Leu Leu Tyr Ala Tyr Tyr Gln  
65 70 75 80

Ile Ser Asn Leu His Lys Ile Ala Ser Lys Tyr Leu Leu Ile Ile Ala  
85 90 95

Gly Val Phe Ser Thr Phe Ala Ser Phe Ile Phe Thr Ser Ala Val Ala  
100 105 110

Ser Leu Phe Trp Ser Glu Leu Ala Ser Ile Lys Asp Ala Pro Phe Leu  
115 120 125

Phe Leu Leu Val Ala Asp Val Ala Arg Gly Ala Arg Met Ala Lys Ala  
130 135 140

Gly Trp Ser Ala Gly Glu Asp Gln Gly Lys Arg Val Gly Arg Ala Leu  
145 150 155 160

Ala Leu Leu Gly Pro Thr Ala Thr Leu Asp Thr Leu Leu Ala Val Leu  
165 170 175

Leu Val Gly Val Gly Ala Leu Ser Gly Val Pro Arg Leu Glu His Met  
180 185 190

Cys Thr Phe Ala Cys Leu Ala Leu Leu Val Asp Tyr Leu Val Phe Val  
 195 200 205  
 Thr Phe Tyr Pro Ala Cys Leu Ser Leu Val Ala Asp Phe Ala Ser Gly  
 210 215 220  
 Arg Lys Glu Met Ser Pro Asp Ser Pro Phe Ser Glu Ala Asp Leu Lys  
 225 230 235 240  
 Pro Asn Pro Val Val Gln Arg Val Lys Met Ile Met Ala Ala Gly Leu  
 245 250 255  
 Leu Cys Val His Leu Thr Ser Arg Trp Pro Trp Ser Ser Asp Asn Gly  
 260 265 270  
 Ile Ile Glu Gly Pro Thr Asp Thr Leu Thr Pro Thr Ser Asn Asp Asn  
 275 280 285  
 Ile Leu Leu His Ser Tyr Val Lys Trp Phe Ser Val Ser Ala Asp Tyr  
 290 295 300  
 Ile Val Ile Ala Thr Leu Leu Cys Ala Leu Ile Ile Lys Phe Val Phe  
 305 310 315 320  
 Phe Glu Glu Gln Arg Asn Trp Val Ile Asp Met Asn Asp Met Thr Val  
 325 330 335  
 Lys Glu Val Val Gln Glu Gln Ala Arg Ser Lys Pro Lys Phe Ser Val  
 340 345 350  
 Gly Asp Asp Ser Asn Ser Glu Val Ser Thr Gln Thr Glu Gly Val Leu  
 355 360 365  
 Glu Asp Glu Trp Pro Thr Leu Ser Pro Ser Ser Ser Ala Ala Lys Leu  
 370 375 380  
 Asn Ser Lys Lys Arg Pro Met Ala Glu Cys Leu Glu Ile Tyr Arg Ser  
 385 390 395 400  
 Glu Gly Ala Cys Val Ser Leu Ser Asp Glu Glu Val Val Met Leu Val  
 405 410 415  
 Glu Gln Ser His Ile Pro Leu His Arg Leu Glu Ala Val Leu Gly Asp  
 420 425 430  
 Pro Leu Arg Gly Val Arg Leu Arg Arg Lys Val Val Gly Ala Arg Phe

435					440					445					
Gln	Thr	Glu	Leu	Ala	Ile	Lys	Gln	Leu	Pro	Tyr	Leu	Asn	Tyr	Asp	Tyr
450						455					460				
Ser	Lys	Val	Leu	Asn	Ala	Cys	Cys	Glu	Asn	Val	Ile	Gly	Tyr	Val	Gly
465					470					475					480
Val	Pro	Val	Gly	Tyr	Ala	Gly	Pro	Leu	Val	Val	Asp	Gly	Lys	Pro	Tyr
				485					490					495	
Met	Ile	Pro	Met	Ala	Thr	Thr	Glu	Gly	Ala	Leu	Val	Ala	Ser	Thr	Asn
			500					505					510		
Arg	Gly	Ala	Lys	Ala	Ile	Gly	Ile	Arg	Gly	Val	Thr	Ser	Val	Val	Glu
		515					520					525			
Asp	Val	Gly	Met	Thr	Arg	Ala	Pro	Ala	Ile	Lys	Leu	Pro	Asn	Val	Val
	530					535					540				
Arg	Ala	His	Glu	Cys	Arg	Gln	Trp	Ile	Asp	Asn	Lys	Asp	Asn	Tyr	Ala
545					550					555					560
Val	Ile	Lys	Glu	Ala	Phe	Asp	Ser	Thr	Ser	Arg	Phe	Ala	Arg	Leu	Gln
				565					570					575	
Glu	Ile	His	Ile	Gly	Val	Asp	Gly	Ala	Thr	Leu	Tyr	Leu	Arg	Phe	Arg
			580					585					590		
Ala	Thr	Thr	Gly	Asp	Ala	Met	Gly	Met	Asn	Met	Val	Ser	Lys	Gly	Ala
		595					600					605			
Glu	Asn	Ala	Leu	Lys	Leu	Leu	Lys	Asn	Tyr	Phe	Pro	Asp	Met	Glu	Val
	610					615					620				
Ile	Ser	Leu	Ser	Gly	Asn	Tyr	Cys	Ser	Asp	Lys	Lys	Ala	Ala	Ala	Ile
625					630					635					640
Asn	Trp	Val	Lys	Gly	Arg	Gly	Lys	Arg	Val	Val	Cys	Glu	Thr	Thr	Ile
				645					650					655	
Thr	Ser	Asp	Ser	Leu	Arg	Thr	Ile	Phe	Lys	Thr	Asp	Ala	Lys	Thr	Leu
			660					665					670		
Ala	Arg	Cys	Asn	Lys	Ile	Lys	Asn	Leu	Ser	Gly	Ser	Ala	Leu	Ala	Gly
		675					680					685			

Ser Ile Gly Gly Asn Asn Ala His Ala Ala Asn Met Val Thr Ala Ile  
690 695 700

Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Thr Ser Ser Asn  
705 710 715 720

Cys Ser Thr Asn Met Glu Val Cys Gly Glu Asn Gly Glu Asp Leu Tyr  
725 730 735

Val Thr Cys Thr Met Pro Ser Leu Glu Val Gly Thr Val Gly Gly Gly  
740 745 750

Thr Ile Leu Thr Gly Gln Gly Ala Cys Leu Asp Ile Leu Gly Val Lys  
755 760 765

Gly Ala Gly Ala Arg Pro Ala Glu Asn Ser Ala Arg Leu Ala Ser Leu  
770 775 780

Ile Cys Ala Thr Val Leu Ala Gly Glu Leu Ser Leu Met Ala Ala Leu  
785 790 795 800

Val Asn Ser Asp Leu Val Lys Ser His Met Arg His Asn Arg Ser Thr  
805 810 815

Val Asn Val Gln Val Gln Ala Glu Asn Ile Thr Leu Lys Val Pro Thr  
820 825 830

Leu

<210> 256  
<211> 934  
<212> PRT  
<213> Pichia jadinii

<400> 256

Met Phe Tyr His Gly Ala Ser Ala Asn Gln His Trp Ile Ala Val Asp  
1 5 10 15

Asp Leu Ser Lys Val Pro Val Asp Val Asp His Tyr Asn Val Val Pro  
20 25 30

Phe Gln Phe Arg Arg Ala Gly Glu Tyr Lys Glu Pro Val Leu Ser Gly  
35 40 45

Ile Val Glu Leu Asp Glu Val Lys Phe Val Val Ser Gln Ser Asp Ala  
 50 55 60

Ala Glu Gln Trp Gln Gln Leu Thr Ala Glu Asp Gly Thr Val Trp Arg  
 65 70 75 80

Ser Arg Ala Tyr His Gly Lys Leu Gly Lys Tyr Ser Asp Met Ala Val  
 85 90 95

Gly Ala Phe Asn Lys Val Leu Asn Leu Val Arg Gly Ala Glu Thr Phe  
 100 105 110

Asp Ile Ala Leu Val Thr Cys Ala Tyr Ile Ala Met Phe Tyr Thr Leu  
 115 120 125

Phe Asn Leu Phe Ala Arg Met Arg Ala Val Gly Ser Lys Val Trp Leu  
 130 135 140

Gly Leu Ser Thr Leu Val Ser Ser Phe Phe Ala Phe Leu Phe Ala Leu  
 145 150 155 160

Tyr Ile Thr Thr Arg Val Leu Asp Leu Ser Ile Pro Phe Leu Ser Leu  
 165 170 175

Ser Glu Gly Ile Pro Phe Phe Val Ala Val Val Gly Phe Asn Asn Lys  
 180 185 190

Ile Leu Leu Ala Glu Lys Val Leu Gln Asn Gln Leu Asn Ala Gln Ser  
 195 200 205

Ser Lys Asn Asp Ala Pro Thr Val Leu Tyr Gln Ala Leu Arg Glu Gln  
 210 215 220

Gly Pro Leu Leu Leu Arg Asp His Leu Phe Met Ile Thr Ala Phe Leu  
 225 230 235 240

Gly Cys Ser Phe Tyr Ala Ser Tyr Leu Asp Gly Leu Lys Asn Phe Cys  
 245 250 255

Ile Leu Ala Ala Leu Ile Leu Ala Phe Asp Ile Leu Thr Thr Ser Thr  
 260 265 270

Phe Leu Ser Ala Ile Leu Ser Leu Lys Leu Glu Ile Asn Gln Ile His  
 275 280 285

Arg Ser Thr Leu Leu Arg Glu Gln Leu Glu Asp Asp Gly Leu Thr Glu

290	295	300															
Thr	Thr	Val	Asp	Asp	Val	Leu	Lys	Ser	Asn	Ser	Leu	Ala	Gly	Thr	Lys		
305					310					315					320		
Thr	Phe	Thr	Asp	Ala	Pro	Ser	Thr	Leu	Val	Thr	Val	Ala	Lys	Val	Ala		
				325					330					335			
Gly	Val	Ser	Val	Phe	Phe	Gly	Leu	His	Phe	Tyr	Gly	Phe	Gly	Ser	Ala		
			340					345					350				
Trp	Leu	Ser	Asp	Leu	Ser	Ala	Gly	Asn	Glu	Thr	Asn	Asp	Thr	Phe	Thr		
		355					360					365					
Leu	Tyr	Asp	Ala	Val	Ala	Asp	Gln	Ile	Pro	Ile	Gly	Ser	Asn	Gly	Thr		
	370					375					380						
Leu	Val	Thr	Leu	Phe	Pro	Thr	Arg	Phe	Phe	Leu	Pro	Glu	Lys	Leu	Ser		
385					390					395						400	
Thr	Gln	Ile	Glu	Ala	Val	Val	Leu	Ser	Phe	Ile	Gly	Leu	Ile	Ser	Thr		
				405					410					415			
Ala	Ala	Arg	Asp	Lys	Tyr	Ile	Ser	Lys	Phe	Ile	Leu	Phe	Ala	Phe	Ala		
			420					425					430				
Val	Ser	Ala	Ser	Ile	Asn	Val	Tyr	Leu	Leu	Asn	Val	Ala	Arg	Ile	His		
		435					440					445					
Thr	Thr	Arg	Leu	Glu	Asp	Ala	Ile	Glu	Leu	Lys	Lys	Pro	Lys	Lys	Lys		
	450					455					460						
Ala	Ser	Lys	Thr	Ala	Val	Ser	Val	Pro	Lys	Ala	Val	Val	Val	Lys	Asp		
465					470					475					480		
Ser	Glu	Thr	Thr	Lys	Ser	Ser	Glu	Ile	Leu	His	Ser	Ser	Ser	Glu	Ser		
				485					490					495			
Glu	Ser	Glu	Gln	Ser	Ser	Arg	Pro	Leu	Glu	Gln	Val	Ile	Glu	Leu	Tyr		
			500					505					510				
Lys	Asp	Gly	Lys	Val	Lys	Thr	Leu	Val	Asp	Asp	Glu	Val	Val	Ser	Leu		
		515					520					525					
Val	Thr	Ala	Gly	Lys	Leu	Pro	Leu	Tyr	Ala	Leu	Glu	Lys	Gln	Leu	Gly		
	530					535					540						



Asp Asn Leu Arg Ala Val Ala Ile Arg Arg Lys Ala Ile Ser Asp Leu  
 545 550 555 560

Ala Asp Ala Pro Val Leu Arg Ser Asn Lys Leu Pro Tyr Leu His Tyr  
 565 570 575

Asp Tyr Asp Arg Val Phe Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr  
 580 585 590

Met Pro Leu Pro Val Gly Val Ala Gly Pro Leu Ile Ile Asp Gly Lys  
 595 600 605

Pro Tyr His Ile Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser  
 610 615 620

Ala Met Arg Gly Cys Lys Ala Ile Asn Leu Gly Gly Gly Val Thr Thr  
 625 630 635 640

Val Leu Thr Lys Asp Gly Met Thr Arg Gly Pro Cys Val Lys Phe Pro  
 645 650 655

Ser Leu Lys Arg Ala Gly Gln Cys Lys Leu Trp Leu Asp Ser Asp Glu  
 660 665 670

Gly Gln Glu Glu Met Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala  
 675 680 685

Arg Leu Gln His Leu Gln Thr Ala Leu Ala Gly Asp Leu Leu Phe Ile  
 690 695 700

Arg Phe Arg Thr Val Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser  
 705 710 715 720

Lys Gly Val Glu Tyr Ala Leu Lys Gln Met Thr Glu Val Phe Gly Trp  
 725 730 735

Asp Asp Met Met Val Val Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys  
 740 745 750

Lys Pro Ala Ala Val Asn Trp Ile Asn Gly Arg Gly Lys Ser Val Val  
 755 760 765

Ala Glu Ala Ser Ile Pro Lys Asp Ala Val Val Lys Val Leu Lys Ser  
 770 775 780

Ser Val Lys Ala Val Val Asp Val Asn Val Asn Lys Asn Leu Ile Gly  
785 790 795 800

Ser Ala Met Ala Gly Ser Val Gly Gly Phe Asn Ala Gln Ala Ala Asn  
805 810 815

Met Val Thr Ala Val Tyr Leu Ala Leu Gly Gln Asp Pro Ala Gln Asn  
820 825 830

Val Glu Ser Ser Asn Cys Ile Thr Leu Met Thr Glu Thr Glu Asp Gly  
835 840 845

Asp Leu Lys Val Ser Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile  
850 855 860

Gly Gly Gly Thr Ile Leu Asp Pro Gln Gly Ser Met Leu Glu Leu Leu  
865 870 875 880

Gly Val Arg Gly Pro Ala Asp Val Pro Gly Glu Asn Ala Arg Gln Leu  
885 890 895

Ala Lys Ile Val Ala Ser Ile Val Leu Ser Gly Glu Leu Ser Leu Val  
900 905 910

Ser Ala Leu Ala Ala Gly His Leu Val Gln Ser His Met Gln His Asn  
915 920 925

Arg Ala Ala Ala Lys Lys  
930

<210> 257  
<211> 628  
<212> PRT  
<213> Gossypium hirsutum

<400> 257

Met Glu Ala Ser Arg Arg Ser Ala Val Lys Pro Val Ile Val Leu Lys  
1 5 10 15

Pro Ser Lys Arg Phe Pro Leu Val Glu Asp Thr Pro Gly Lys Ala Ser  
20 25 30

Asp Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr  
35 40 45

Leu Phe Phe Thr Val Val Tyr Phe Leu Leu Ser Arg Trp Arg Glu Lys

50		55		60
Ile Arg Ala Ser Ile Pro Leu His Ala Val Thr Phe Pro Glu Ile Val				
65		70		75 80
Ala Ile Phe Ala Phe Val Ala Ser Leu Ile Tyr Leu Leu Gly Phe Phe				
	85		90	95
Gly Ile Asp Phe Val Gln Ser Leu Ile Ile Arg Pro Ser Gly Asp Val				
	100		105	110
Trp Ser Gly Glu Asp Tyr Glu Glu Glu Asn Glu Val Leu Leu His Glu				
	115		120	125
Glu Asp Ala Arg Thr Val Pro Cys Gly Gln Ala Leu Asp Cys Ser Val				
	130		135	140
Pro Ser Leu Pro His Met Ala Arg Asn Val Thr Ala Gln Arg Leu Phe				
145		150		155 160
Asp Glu Lys Pro Val Arg Val Ala Thr Glu Glu Asp Ala Arg Lys Val				
	165		170	175
Ser Cys Gly Gln Ala Val Asp Cys Ser Leu His Ser Leu Pro Pro Arg				
	180		185	190
Pro Pro Ile Val Thr Ser Gln Lys Leu Phe His Glu Lys Thr Val Ile				
	195		200	205
Val Thr Thr Glu Glu Asp Glu Glu Ile Ile Lys Ser Val Val Ala Gly				
	210		215	220
Thr Leu Pro Ser Tyr Ser Leu Glu Ser Lys Leu Gly Asp Cys Lys Arg				
225		230		235 240
Ala Ala Ala Ile Arg Arg Glu Ala Leu Gln Arg Leu Thr Gly Arg Ser				
	245		250	255
Leu Ser Gly Leu Pro Leu Asp Gly Phe Asp Tyr Glu Ser Ile Leu Gly				
	260		265	270
Gln Cys Cys Glu Met Pro Val Gly Tyr Val Gln Ile Pro Val Gly Ile				
	275		280	285
Ala Gly Pro Leu Leu Leu Asn Gly Arg Glu Tyr Ser Val Pro Met Ala				
	290		295	300

Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Lys Ala  
 305 310 315 320

Ile His Leu Ser Gly Gly Ala Thr Ser Ile Leu Leu Lys Asp Gly Met  
 325 330 335

Thr Arg Ala Pro Val Val Arg Phe Ser Thr Ala Lys Arg Ala Ala Glu  
 340 345 350

Leu Lys Phe Tyr Leu Glu Asp Pro Glu Asn Phe Asp Thr Leu Ala Val  
 355 360 365

Val Phe Asn Arg Ser Ser Arg Phe Gly Arg Leu Gln Ser Ile Lys Cys  
 370 375 380

Ala Ile Ala Gly Lys Asn Leu Tyr Leu Arg Phe Thr Cys Ser Thr Gly  
 385 390 395 400

Asp Ala Met Gly Met Asn Met Val Ser Lys Gly Val Gln Asn Val Leu  
 405 410 415

Asp Phe Leu Gln Thr Asp Phe Pro Asp Met Asp Val Ile Gly Ile Ser  
 420 425 430

Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu  
 435 440 445

Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Ile Glu Gly Asp Val  
 450 455 460

Val Arg Lys Val Leu Lys Thr Ser Val Glu Ser Leu Val Glu Leu Asn  
 465 470 475 480

Met Leu Lys Asn Leu Thr Gly Ser Ala Met Ala Gly Ala Leu Gly Gly  
 485 490 495

Phe Asn Ala His Ala Ser Asn Ile Val Thr Ala Ile Tyr Ile Ala Thr  
 500 505 510

Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser His Cys Ile Thr Met  
 515 520 525

Met Glu Ala Val Asn Asp Gly Lys Asp Leu His Ile Ser Val Thr Met  
 530 535 540

Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr Gln Leu Ala Ser  
 545 550 555 560

Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys Gly Ala Ser Lys Asp  
 565 570 575

Val Ala Gly Ala Asn Ser Arg Met Leu Ala Thr Ile Val Thr Gly Ala  
 580 585 590

Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Leu Ala Ala Gly Gln  
 595 600 605

Leu Val Lys Ser His Met Lys Tyr Asn Arg Ser Ser Lys Asp Met Ser  
 610 615 620

Asn Leu Ser Ser  
 625

<210> 258  
 <211> 585  
 <212> PRT  
 <213> Gossypium hirsutum

<400> 258

Met Glu Thr His Arg Arg Ser Ser Thr Asn Ser Ile Arg Ser His Lys  
 1 5 10 15

Pro Ala Arg Pro Ile Ala Leu Glu Asp Asp Ser Thr Lys Ala Ser Asp  
 20 25 30

Ala Leu Pro Leu Pro Leu Tyr Leu Thr Asn Ala Val Phe Phe Thr Leu  
 35 40 45

Phe Phe Ser Ala Val Tyr Phe Leu Leu Cys Arg Trp Arg Glu Lys Ile  
 50 55 60

Arg Ser Ser Thr Pro Leu His Val Val Thr Phe Ser Glu Ile Val Ala  
 65 70 75 80

Ile Leu Ala Ser Val Ala Ser Phe Ile Tyr Leu Leu Gly Phe Phe Gly  
 85 90 95

Ile Asp Phe Val Gln Ser Leu Val Leu Arg Pro Ser Ala Asp Val Trp  
 100 105 110

Ala Thr Glu Asp Asp Glu Val Glu Ser Glu Val Leu Leu Arg Asn Glu

115		120		125											
Asp	Ala	Arg	His	Val	Pro	Cys	Gly	Gln	Ala	Leu	Asp	Arg	Ser	Ile	Arg
130						135					140				
Ser	Leu	Gln	Pro	Pro	Glu	Pro	Ile	Val	Thr	Ala	Glu	Lys	Val	Phe	Asp
145					150					155					160
Glu	Met	Pro	Val	Thr	Val	Met	Thr	Glu	Glu	Asp	Glu	Glu	Ile	Ile	Arg
				165					170						175
Ser	Val	Val	Cys	Gly	Met	Thr	Pro	Ser	Tyr	Ser	Leu	Glu	Ser	Lys	Leu
			180					185						190	
Asp	Asp	Cys	Lys	Arg	Ala	Ala	Ala	Ile	Arg	Arg	Glu	Ala	Leu	Gln	Arg
		195					200					205			
Ile	Thr	Gly	Lys	Ser	Leu	Ser	Gly	Leu	Pro	Leu	Asp	Gly	Phe	Asp	Tyr
	210					215					220				
Glu	Ser	Ile	Leu	Gly	Gln	Cys	Cys	Glu	Met	Pro	Val	Gly	Tyr	Glu	Gln
225					230					235					240
Ile	Pro	Val	Gly	Ile	Ala	Gly	Pro	Leu	Leu	Leu	Asn	Gly	Arg	Glu	Tyr
				245					250					255	
Ser	Val	Pro	Met	Ala	Thr	Thr	Glu	Gly	Cys	Leu	Val	Ala	Ser	Thr	Asn
			260					265						270	
Arg	Gly	Cys	Lys	Ala	Ile	His	Leu	Ser	Gly	Gly	Ala	Thr	Ser	Val	Leu
		275					280					285			
Leu	Arg	Asp	Gly	Met	Thr	Arg	Ala	Pro	Val	Val	Arg	Phe	Gly	Thr	Ala
	290					295					300				
Lys	Arg	Ala	Ala	Asp	Leu	Lys	Leu	Tyr	Leu	Glu	Asp	Pro	Glu	Asn	Phe
305					310					315					320
Glu	Thr	Leu	Ala	Cys	Val	Phe	Asn	Arg	Ser	Ser	Arg	Phe	Ala	Arg	Leu
				325					330					335	
Gln	Ser	Ile	Lys	Cys	Ala	Ile	Ala	Gly	Lys	Asn	Leu	Tyr	Leu	Arg	Phe
			340					345					350		
Ser	Cys	Phe	Thr	Gly	Asp	Ala	Met	Gly	Met	Asn	Met	Val	Ser	Lys	Gly
		355					360					365			

Val Gln Asn Val Leu Asp Phe Leu Gln Thr Asp Phe Pro Asp Met Asp  
370 375 380

Val Ile Gly Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ala Ala  
385 390 395 400

Val Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile  
405 410 415

Ile Asn Gly Asp Val Val Thr Lys Val Leu Lys Thr Ser Val Glu Ser  
420 425 430

Leu Val Glu Leu Asn Met Leu Lys Asn Leu Thr Gly Ser Ala Met Ala  
435 440 445

Gly Ala Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Thr Ala  
450 455 460

Val Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser  
465 470 475 480

His Cys Ile Thr Met Met Glu Ala Val Asn Gly Gly Lys Asp Leu His  
485 490 495

Val Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly  
500 505 510

Thr Gln Leu Ala Ser Gln Ser Ala Cys Leu Asn Leu Leu Gly Val Lys  
515 520 525

Gly Ala Ser Lys Glu Ser Pro Gly Ala Asn Ser Ile Leu Leu Ala Thr  
530 535 540

Ile Val Ala Gly Ala Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala  
545 550 555 560

Leu Ala Ala Gly Gln Leu Val Lys Ser His Met Lys Tyr Asn Arg Ser  
565 570 575

Ser Lys Asp Val Ser Lys Val Ser Ser  
580 585

<210> 259  
<211> 413  
<212> PRT

<213> Pyrococcus horikoshii

<400> 259

Met Gly Gly Gly Asn Leu Asn Ile Glu Glu Ile Ile Glu Lys Val Ala  
1 5 10 15

Asn Gly Glu Ile Lys Phe Tyr Gln Val Glu Lys Tyr Val Asn Gly Asp  
20 25 30

Lys Arg Leu Ala Thr Glu Ile Arg Arg Lys Ala Leu Glu Lys Arg Leu  
35 40 45

Gly Ile Lys Leu His His Ile Gly Tyr Tyr Ser Ile Asp Pro Asn Glu  
50 55 60

Leu Ile Gly Arg Asn Ile Glu Asn Met Ile Gly Val Val Gln Ile Pro  
65 70 75 80

Met Gly Val Ala Gly Pro Leu Lys Ile Asn Gly Glu Tyr Ala Lys Gly  
85 90 95

Glu Phe Tyr Ile Pro Leu Ala Thr Thr Glu Gly Ala Leu Val Ala Ser  
100 105 110

Val Asn Arg Gly Cys Ser Ala Leu Thr Glu Ala Gly Gly Val Val Thr  
115 120 125

Thr Leu Ile Asp Asp Lys Met Thr Arg Ala Pro Leu Ile Arg Cys Pro  
130 135 140

Asn Ala Arg Arg Ala Arg Glu Val Ala Lys Trp Val Glu Glu Asn Leu  
145 150 155 160

Asp Tyr Leu Gln Glu Lys Ala Val Ser Lys Val Thr Arg His Gly Lys  
165 170 175

Leu Arg Gly Val Lys Pro Phe Ile Val Gly Asn Asn Leu Tyr Leu Arg  
180 185 190

Phe Glu Phe Glu Thr Gly Asp Ala Met Gly Met Asn Met Val Thr Ile  
195 200 205

Ala Ser Glu Glu Ile Met Lys Val Ile Glu Glu Glu Phe Pro Asp Val  
210 215 220

Arg Tyr Leu Ala Leu Ser Gly Asn Leu Cys Val Asp Lys Lys Pro Asn



225		230		235		240
Ala Val Asn Phe Ile Leu Gly Arg Gly Lys Thr Val Ile Ala Glu Ala	245			250		255
Val Val Pro Arg Lys Ile Val Glu Lys Lys Leu Lys Thr Thr Pro Glu	260			265		270
Leu Ile Ala Glu Val Asn Tyr Phe Lys Asn Leu Val Gly Ser Ala Gln	275			280		285
Ala Gly Ser Tyr Gly Phe Asn Ala His Phe Ala Asn Ile Val Gly Ala	290			295		300
Ile Phe Leu Ala Thr Gly Gln Asp Glu Ala Gln Ile Thr Glu Gly Ala	305			310		315
His Gly Ile Thr Ile Ala Glu Val Thr Pro Asp Gly Asp Leu Tyr Ile	325			330		335
Ser Ile Thr Met Pro Ser Leu Glu Ile Gly Thr Val Gly Gly Gly Thr	340			345		350
Arg Val Pro Ser Gln Arg Glu Ala Leu Glu Ile Met Gly Val Ala Gly	355			360		365
Gly Gly Asp Pro Pro Gly Ile Asn Ala Lys Lys Phe Ala Glu Ile Val	370			375		380
Ala Gly Ala Val Leu Ala Gly Glu Leu Ser Leu Leu Ala Ala Ile Ala	385			390		395
Ala Lys His Leu Ala Arg Ala His Lys Met Leu Gly Arg	405			410		

<210> 260  
 <211> 431  
 <212> PRT  
 <213> *Borrelia burgdorferi*

<400> 260

Met Asn Leu Glu Ser Leu Ser Ser Phe Met Glu Leu Ser Lys Asn Phe	1	5	10	15
Arg His Lys Ser Val Leu Glu Lys Arg Gln Glu Ile Lys Ser Phe Leu	20	25	30	

Glu	Leu	Ser	Tyr	Lys	Asp	Phe	Phe	Tyr	Asn	Asn	Ala	Asn	Glu	Asp	Phe	35	40	45
Leu	Phe	Asn	Met	Ile	Glu	Asn	Tyr	Ile	Gly	Tyr	Leu	Ser	Phe	Pro	Ile	50	55	60
Gly	Ile	Val	Lys	Asn	Leu	Lys	Ile	Asn	Gly	Lys	Tyr	Tyr	Ser	Leu	Pro	65	70	75
Ile	Ala	Thr	Glu	Glu	Ser	Ser	Val	Val	Ala	Ala	Leu	Asn	Phe	Ala	Ala	85	90	95
Lys	Ile	Leu	Glu	Asn	Ala	Asp	Leu	Arg	Tyr	Ser	Leu	Gly	Glu	Val	Leu	100	105	110
Gly	Ile	Ser	Gln	Ile	Tyr	Ile	Lys	Ser	Glu	Lys	Asp	Leu	Ser	Lys	Ile	115	120	125
Phe	Val	Asp	Leu	Gly	Asp	Lys	Ile	Lys	Thr	Trp	Ile	Glu	Pro	Leu	Leu	130	135	140
Thr	Asn	Met	Asn	Gln	Arg	Gly	Gly	Gly	Phe	Arg	Arg	Leu	Ser	Thr	Arg	145	150	155
His	Ile	Lys	Glu	Leu	Gly	Ile	Gln	Lys	Leu	Asn	Ile	Tyr	Val	Asp	Thr	165	170	175
Cys	Asp	Ala	Met	Gly	Ala	Asn	Leu	Leu	Asn	Ser	Ile	Ala	Glu	Arg	Val	180	185	190
Ala	Glu	Phe	Ile	Phe	Leu	Glu	Phe	Gly	Tyr	Glu	Cys	Val	Leu	Lys	Val	195	200	205
Leu	Ser	Asn	Asp	Ile	Ser	Glu	Phe	Thr	Ala	Lys	Ala	Arg	Phe	Val	Leu	210	215	220
Asp	Phe	Lys	His	Leu	Leu	Pro	Gly	Lys	Glu	Asp	Ser	Trp	Asn	Leu	Ala	225	230	235
Lys	Lys	Ile	Glu	Leu	Ile	Ser	Ser	Ile	Gly	Phe	Tyr	Glu	Glu	Glu	Arg	245	250	255
Ala	Val	Thr	Asn	Asn	Lys	Gly	Ile	Met	Asn	Gly	Ile	Thr	Gly	Val	Cys	260	265	270

Leu Ala Thr Phe Asn Asp Thr Arg Ala Leu Glu Ala Ser Val His Lys  
 275 280 285

Phe Ala Ser Lys Ser Gly Lys Tyr Phe Pro Leu Ser Lys Phe Tyr Thr  
 290 295 300

Thr Asp Asn Ala Leu Val Gly Glu Ile Glu Ile Pro Leu Gln Val Gly  
 305 310 315 320

Thr Lys Gly Gly Val Ile Ser Phe Asn Glu Ala Ser Ile Leu Ser Phe  
 325 330 335

Lys Ile Met Asn Val Asn Ser Lys Ser Glu Phe Ile Gly Ile Leu Ser  
 340 345 350

Cys Val Gly Leu Ala Ser Asn Phe Ala Ala Leu Arg Ala Leu Ala Phe  
 355 360 365

Asn Gly Ile Gln Lys Gly His Met Arg Leu His Val Asn Lys Ile Leu  
 370 375 380

His Leu Leu Lys Thr Lys Tyr Asn Ile Ser Asp Phe Glu Lys Asp Lys  
 385 390 395 400

Leu Leu Leu Glu Met Glu Arg Met Asn Ile Tyr Ser Phe Asp Phe Ala  
 405 410 415

Phe Lys Ile Leu Lys Lys Ile Arg Leu Glu Asn Glu Asn Lys Val  
 420 425 430

<210> 261  
 <211> 579  
 <212> PRT  
 <213> Zea mays

<400> 261

Met Glu Val Arg Gly Gly Val Gly Gln Gly Ser Ala Ala Arg His Pro  
 1 5 10 15

Pro Ala Pro Glu Pro Ser Arg Ala Ala Ala Arg Val Gln Ala Gly Asp  
 20 25 30

Ala Leu Pro Leu Pro Ile Arg His Thr Asn Leu Ile Phe Ser Ala Leu  
 35 40 45

Phe Ala Ala Ser Leu Ala Tyr Leu Met Arg Arg Trp Arg Glu Lys Ile  
 50 55 60

Arg Ser Ser Thr Pro Leu His Ala Val Gly Leu Ala Glu Met Leu Ala  
65 70 75 80

Ile Phe Gly Leu Val Ala Ser Leu Ile Tyr Leu Leu Ser Phe Phe Gly  
85 90 95

Ile Ala Phe Val Gln Ser Ile Val Ser Ser Gly Asp Asp Asp Glu Asp  
100 105 110

Phe Leu Val Gly Ser Gly Ser Ser Gly Ser Ala Ala Ala Pro Ser Arg  
115 120 125

Gln His Ala Gln Ala Pro Ala Pro Cys Glu Leu Leu Gly Ser Pro Ala  
130 135 140

Ala Ala Pro Glu Lys Met Pro Glu Asp Asp Glu Glu Ile Val Ala Ser  
145 150 155 160

Val Val Ala Gly Lys Val Pro Ser Tyr Ala Leu Glu Ala Arg Leu Gly  
165 170 175

Asp Cys Arg Arg Ala Ala Gly Ile Arg Arg Glu Ala Leu Arg Arg Ile  
180 185 190

Thr Gly Arg Asp Ile Glu Gly Leu Pro Leu Asp Gly Phe Asp Tyr Ala  
195 200 205

Ser Ile Leu Gly Gln Cys Cys Glu Leu Pro Val Gly Tyr Val Gln Leu  
210 215 220

Pro Val Gly Val Ala Gly Pro Leu Leu Leu Asp Gly Arg Arg Phe Tyr  
225 230 235 240

Leu Pro Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg  
245 250 255

Gly Cys Lys Ala Ile Ala Glu Ser Gly Gly Ala Thr Ser Val Val Leu  
260 265 270

Arg Asp Ala Met Thr Arg Ala Pro Val Ala Arg Phe Pro Thr Ala Arg  
275 280 285

Arg Ala Ala Glu Leu Lys Ala Phe Leu Glu Asp Pro Ala Asn Phe Asp  
290 295 300

Thr Leu Ser Val Val Phe Asn Arg Ser Ser Arg Phe Ala Arg Leu Gln  
 305 310 315 320

Gly Val Gln Cys Ala Met Ala Gly Arg Asn Leu Tyr Met Arg Phe Ser  
 325 330 335

Cys Ser Thr Gly Asp Ala Met Gly Met Asn Met Val Ser Lys Gly Val  
 340 345 350

Gln Asn Val Leu Asp Phe Leu Gln Asp Asp Phe His Asp Met Asp Val  
 355 360 365

Ile Ser Ile Ser Gly Asn Phe Cys Ser Asp Lys Lys Pro Ser Ala Val  
 370 375 380

Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Cys Glu Ala Val Ile  
 385 390 395 400

Gly Glu Glu Val Val Lys Lys Val Leu Lys Thr Asp Val Gln Ser Leu  
 405 410 415

Val Glu Leu Asn Thr Ile Lys Asn Leu Ala Gly Ser Ala Val Ala Gly  
 420 425 430

Ala Leu Gly Gly Phe Asn Ala His Ala Ser Asn Ile Val Thr Ala Ile  
 435 440 445

Phe Ile Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser His  
 450 455 460

Cys Ile Thr Met Leu Glu Pro Val Asn Ala Gly Arg Asp Leu His Ile  
 465 470 475 480

Ser Val Thr Met Pro Ser Ile Glu Val Gly Thr Val Gly Gly Gly Thr  
 485 490 495

Gln Leu Ala Ser Gln Ser Ala Cys Leu Asp Leu Leu Gly Val Arg Gly  
 500 505 510

Ala Ser Arg Asp Arg Pro Gly Ser Asn Ala Arg Leu Leu Ala Thr Val  
 515 520 525

Val Ala Gly Gly Val Leu Ala Gly Glu Leu Ser Leu Leu Ser Ala Leu  
 530 535 540

Ala Ala Gly Gln Leu Val Lys Ser His Met Lys Tyr Asn Arg Ser Ser  
 545 550 555 560

Lys Asp Val Ser Ser Thr Thr Ala Thr Glu Lys Thr Arg Gln Arg Glu  
 565 570 575

Val Asp Val

<210> 262  
 <211> 888  
 <212> PRT  
 <213> HUMAN

<400> 262

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
 20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
 35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
 50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
 65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
 85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125

Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Thr Leu Ala Lys Phe Ala  
 130 135 140

Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly  
 145 150 155 160

Met Ala Ile Leu Gly Pro Thr Phe Thr Leu Asp Ala Leu Val Glu Cys  
 165 170 175

Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Arg Gln Leu Glu Ile  
180 185 190

Met Cys Cys Phe Gly Cys Met Ser Val Leu Ala Asn Tyr Phe Val Phe  
195 200 205

Met Thr Phe Phe Pro Ala Cys Val Ser Leu Val Leu Glu Leu Ser Arg  
210 215 220

Glu Ser Arg Glu Gly Arg Pro Ile Trp Gln Leu Ser His Phe Ala Arg  
225 230 235 240

Val Leu Glu Glu Glu Glu Asn Lys Pro Asn Pro Val Thr Gln Arg Val  
245 250 255

Lys Met Ile Met Ser Leu Gly Leu Val Leu Val His Ala His Ser Arg  
260 265 270

Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Ala Asp Thr Ser Lys  
275 280 285

Val Ser Leu Gly Leu Asp Glu Asn Val Ser Lys Arg Ile Glu Pro Ser  
290 295 300

Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile  
305 310 315 320

Glu Gln Val Ile Thr Leu Ser Leu Ala Leu Leu Leu Ala Val Lys Tyr  
325 330 335

Ile Phe Phe Glu Gln Thr Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn  
340 345 350

Pro Ile Thr Ser Pro Val Val Thr Gln Lys Lys Val Pro Asp Asn Cys  
355 360 365

Cys Arg Arg Glu Pro Met Leu Val Arg Asn Asn Gln Lys Cys Asp Ser  
370 375 380

Val Glu Glu Glu Thr Gly Ile Asn Arg Glu Arg Lys Val Glu Val Ile  
385 390 395 400

Lys Pro Leu Val Ala Glu Thr Asp Thr Pro Asn Arg Ala Thr Phe Val  
405 410 415

Val Gly Asn Ser Ser Leu Leu Asp Thr Ser Ser Val Leu Val Thr Gln  
420 425 430

Glu Pro Glu Ile Glu Leu Pro Arg Glu Pro Arg Pro Asn Glu Glu Cys  
435 440 445

Leu Gln Ile Leu Gly Asn Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp  
450 455 460

Ala Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys  
465 470 475 480

Leu Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg  
485 490 495

Gln Leu Leu Ser Lys Lys Leu Ser Glu Pro Ser Ser Leu Gln Tyr Leu  
500 505 510

Pro Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu  
515 520 525

Asn Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu  
530 535 540

Cys Leu Asp Glu Lys Glu Phe Gln Val Pro Met Ala Thr Thr Glu Gly  
545 550 555 560

Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly  
565 570 575

Gly Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro  
580 585 590

Val Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp  
595 600 605

Leu Glu Thr Ser Glu Gly Phe Ala Val Ile Lys Glu Ala Phe Asp Ser  
610 615 620

Thr Ser Arg Phe Ala Arg Leu Gln Lys Leu His Thr Ser Ile Ala Gly  
625 630 635 640

Arg Asn Leu Tyr Ile Arg Phe Gln Ser Arg Ser Gly Asp Ala Met Gly  
645 650 655



Met Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Ser Lys Leu His  
660 665 670

Glu Tyr Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys  
675 680 685

Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys  
690 695 700

Ser Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val  
705 710 715 720

Leu Lys Thr Thr Thr Glu Ala Met Ile Glu Val Asn Ile Asn Lys Asn  
725 730 735

Leu Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His  
740 745 750

Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala  
755 760 765

Ala Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser  
770 775 780

Gly Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile  
785 790 795 800

Glu Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala  
805 810 815

Cys Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly  
820 825 830

Glu Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala  
835 840 845

Gly Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Lys  
850 855 860

Ser His Met Ile His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln  
865 870 875 880

Gly Ala Cys Thr Lys Lys Thr Ala  
885

<210> 263

<211> 887  
 <212> PRT  
 <213> Mesocricetus auratus

<400> 263

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
 20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
 35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
 50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
 65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
 85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125

Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Ala Leu Ala Lys Phe Ala  
 130 135 140

Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly  
 145 150 155 160

Met Ala Ile Leu Gly Pro Thr Phe Thr Leu Asp Ala Leu Val Glu Cys  
 165 170 175

Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Arg Gln Leu Glu Ile  
 180 185 190

Met Cys Cys Phe Gly Cys Met Ser Val Leu Ala Asn Tyr Phe Val Phe  
 195 200 205

Met Thr Phe Phe Pro Ala Cys Val Ser Leu Val Leu Glu Leu Ser Arg  
 210 215 220

Glu Ser Arg Glu Gly Arg Pro Ile Trp Gln Leu Ser His Phe Ala Arg  
 225 230 235 240

Val Leu Glu Glu Glu Glu Asn Lys Pro Asn Pro Val Thr Gln Arg Val  
 245 250 255

Lys Met Ile Met Ser Leu Gly Leu Val Leu Val His Ala His Ser Arg  
 260 265 270

Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Thr Glu His Ser Lys  
 275 280 285

Val Ser Leu Gly Leu Asp Glu Asp Val Ser Lys Arg Ile Glu Pro Ser  
 290 295 300

Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile  
 305 310 315 320

Glu Gln Val Val Thr Leu Ser Leu Ala Phe Leu Leu Ala Val Lys Tyr  
 325 330 335

Ile Phe Phe Glu Gln Ala Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn  
 340 345 350

Pro Ile Thr Ser Pro Val Val Thr Pro Lys Lys Ala Pro Asp Asn Cys  
 355 360 365

Cys Arg Arg Glu Pro Leu Leu Val Arg Arg Ser Glu Lys Leu Ser Ser  
 370 375 380

Val Glu Glu Glu Pro Gly Val Ser Gln Asp Arg Lys Val Glu Val Ile  
 385 390 395 400

Lys Pro Leu Val Val Glu Thr Glu Ser Ala Ser Arg Ala Thr Phe Val  
 405 410 415

Leu Gly Ala Ser Gly Thr Ser Pro Pro Val Ala Ala Arg Thr Gln Glu  
 420 425 430

Leu Glu Ile Glu Leu Pro Ser Glu Pro Arg Pro Asn Glu Glu Cys Leu  
 435 440 445

Gln Ile Leu Glu Ser Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp Ala  
 450 455 460

Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys Leu  
 465 470 475 480

Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg Gln  
 485 490 495

Leu Leu Ser Thr Lys Leu Pro Glu Pro Ser Ser Leu Gln Tyr Leu Pro  
 500 505 510

Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu Asn  
 515 520 525

Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu Cys  
 530 535 540

Leu Asp Gly Lys Glu Tyr Gln Val Pro Met Ala Thr Thr Glu Gly Cys  
 545 550 555 560

Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly Gly  
 565 570 575

Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro Val  
 580 585 590

Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp Leu  
 595 600 605

Glu Thr Pro Glu Gly Phe Ala Val Ile Lys Asp Ala Phe Asp Ser Thr  
 610 615 620

Ser Arg Phe Ala Arg Leu Gln Lys Leu His Val Thr Met Ala Gly Arg  
 625 630 635 640

Asn Leu Tyr Ile Arg Phe Gln Ser Lys Thr Gly Asp Ala Met Gly Met  
 645 650 655

Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Leu Lys Leu Gln Glu  
 660 665 670

Phe Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr  
 675 680 685

Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys Thr  
 690 695 700

Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val Leu

705                      710                      715                      720  
 Lys Thr Thr Thr Glu Ala Met Ile Asp Val Asn Ile Asn Lys Asn Leu  
                                  725                                   730                                   735  
 Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala  
                                  740                                   745                                   750  
 Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala Ala  
                                  755                                   760                                   765  
 Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly  
                                  770                                   775                                   780  
 Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile Glu  
                                  785                                   790                                   795                                   800  
 Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys  
                                  805                                   810                                   815  
 Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu  
                                  820                                   825                                   830  
 Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly  
                                  835                                   840                                   845  
 Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Arg Ser  
                                  850                                   855                                   860  
 His Met Val His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly  
                                  865                                   870                                   875                                   880  
 Thr Cys Thr Lys Lys Ser Ala  
                                  885

<210> 264  
 <211> 1045  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 264

Met Ser Leu Pro Leu Lys Thr Ile Val His Leu Val Lys Pro Phe Ala  
 1                      5                      10                      15

Cys Thr Ala Arg Phe Ser Ala Arg Tyr Pro Ile His Val Ile Val Val  
                                  20                                   25                                   30

Ala Val Leu Leu Ser Ala Ala Ala Tyr Leu Ser Val Thr Gln Ser Tyr  
 35 40 45  
 Leu Asn Glu Trp Lys Leu Asp Ser Asn Gln Tyr Ser Thr Tyr Leu Ser  
 50 55 60  
 Ile Lys Pro Asp Glu Leu Phe Glu Lys Cys Thr His Tyr Tyr Arg Ser  
 65 70 75 80  
 Pro Val Ser Asp Thr Trp Lys Leu Leu Ser Ser Lys Glu Ala Ala Asp  
 85 90 95  
 Ile Tyr Thr Pro Phe His Tyr Tyr Leu Ser Thr Ile Ser Phe Gln Ser  
 100 105 110  
 Lys Asp Asn Ser Thr Thr Leu Pro Ser Leu Asp Asp Val Ile Tyr Ser  
 115 120 125  
 Val Asp His Thr Arg Tyr Leu Leu Ser Glu Glu Pro Lys Ile Pro Thr  
 130 135 140  
 Glu Leu Val Ser Glu Asn Gly Thr Lys Trp Arg Leu Arg Asn Asn Ser  
 145 150 155 160  
 Asn Phe Ile Leu Asp Leu His Asn Ile Tyr Arg Asn Met Val Lys Gln  
 165 170 175  
 Phe Ser Asn Lys Thr Ser Glu Phe Asp Gln Phe Asp Leu Phe Ile Ile  
 180 185 190  
 Leu Ala Ala Tyr Leu Thr Leu Phe Tyr Thr Leu Cys Cys Leu Phe Asn  
 195 200 205  
 Asp Met Arg Lys Ile Gly Ser Lys Phe Trp Leu Ser Phe Ser Ala Leu  
 210 215 220  
 Ser Asn Ser Ala Cys Ala Leu Tyr Leu Ser Leu Tyr Thr Thr His Ser  
 225 230 235 240  
 Leu Leu Lys Lys Pro Ala Ser Leu Leu Ser Leu Val Ile Gly Leu Pro  
 245 250 255  
 Phe Ile Val Val Ile Ile Gly Phe Lys His Lys Val Arg Leu Ala Ala  
 260 265 270

Phe Ser Leu Gln Lys Phe His Arg Ile Ser Ile Asp Lys Lys Ile Thr  
 275 280 285

Val Ser Asn Ile Ile Tyr Glu Ala Met Phe Gln Glu Gly Ala Tyr Leu  
 290 295 300

Ile Arg Asp Tyr Leu Phe Tyr Ile Ser Ser Phe Ile Gly Cys Ala Ile  
 305 310 315 320

Tyr Ala Arg His Leu Pro Gly Leu Val Asn Phe Cys Ile Leu Ser Thr  
 325 330 335

Phe Met Leu Val Phe Asp Leu Leu Leu Ser Ala Thr Phe Tyr Ser Ala  
 340 345 350

Ile Leu Ser Met Lys Leu Glu Ile Asn Ile Ile His Arg Ser Thr Val  
 355 360 365

Ile Arg Gln Thr Leu Glu Glu Asp Gly Val Val Pro Thr Thr Ala Asp  
 370 375 380

Ile Ile Tyr Lys Asp Glu Thr Ala Ser Glu Pro His Phe Leu Arg Ser  
 385 390 395 400

Asn Val Ala Ile Ile Leu Gly Lys Ala Ser Val Ile Gly Leu Leu Leu  
 405 410 415

Leu Ile Asn Leu Tyr Val Phe Thr Asp Lys Leu Asn Ala Thr Ile Leu  
 420 425 430

Asn Thr Val Tyr Phe Asp Ser Thr Ile Tyr Ser Leu Pro Asn Phe Ile  
 435 440 445

Asn Tyr Lys Asp Ile Gly Asn Leu Ser Asn Gln Val Ile Ile Ser Val  
 450 455 460

Leu Pro Lys Gln Tyr Tyr Thr Pro Leu Lys Lys Tyr His Gln Ile Glu  
 465 470 475 480

Asp Ser Val Leu Leu Ile Ile Asp Ser Val Ser Asn Ala Ile Arg Asp  
 485 490 495

Gln Phe Ile Ser Lys Leu Leu Phe Phe Ala Phe Ala Val Ser Ile Ser  
 500 505 510

Ile Asn Val Tyr Leu Leu Asn Ala Ala Lys Ile His Thr Gly Tyr Met

515							520									525
Asn	Phe	Gln	Pro	Gln	Ser	Asn	Lys	Ile	Asp	Asp	Leu	Val	Val	Gln	Gln	
530						535					540					
Lys	Ser	Ala	Thr	Ile	Glu	Phe	Ser	Glu	Thr	Arg	Ser	Met	Pro	Ala	Ser	
545					550					555					560	
Ser	Gly	Leu	Glu	Thr	Pro	Val	Thr	Ala	Lys	Asp	Ile	Ile	Ile	Ser	Glu	
				565					570					575		
Glu	Ile	Gln	Asn	Asn	Glu	Cys	Val	Tyr	Ala	Leu	Ser	Ser	Gln	Asp	Glu	
			580					585					590			
Pro	Ile	Arg	Pro	Leu	Ser	Asn	Leu	Val	Glu	Leu	Met	Glu	Lys	Glu	Gln	
		595					600					605				
Leu	Lys	Asn	Met	Asn	Asn	Thr	Glu	Val	Ser	Asn	Leu	Val	Val	Asn	Gly	
	610					615					620					
Lys	Leu	Pro	Leu	Tyr	Ser	Leu	Glu	Lys	Lys	Leu	Glu	Asp	Thr	Thr	Arg	
625					630					635					640	
Ala	Val	Leu	Val	Arg	Arg	Lys	Ala	Leu	Ser	Thr	Leu	Ala	Glu	Ser	Pro	
				645					650					655		
Ile	Leu	Val	Ser	Glu	Lys	Leu	Pro	Phe	Arg	Asn	Tyr	Asp	Tyr	Asp	Arg	
			660					665					670			
Val	Phe	Gly	Ala	Cys	Cys	Glu	Asn	Val	Ile	Gly	Tyr	Met	Pro	Ile	Pro	
		675					680					685				
Val	Gly	Val	Ile	Gly	Pro	Leu	Ile	Ile	Asp	Gly	Thr	Ser	Tyr	His	Ile	
	690					695					700					
Pro	Met	Ala	Thr	Thr	Glu	Gly	Cys	Leu	Val	Ala	Ser	Ala	Met	Arg	Gly	
705					710					715					720	
Cys	Lys	Ala	Ile	Asn	Ala	Gly	Gly	Gly	Ala	Thr	Thr	Val	Leu	Thr	Lys	
				725					730					735		
Asp	Gly	Met	Thr	Arg	Gly	Pro	Val	Val	Arg	Phe	Pro	Thr	Leu	Ile	Arg	
			740					745					750			
Ser	Gly	Ala	Cys	Lys	Ile	Trp	Leu	Asp	Ser	Glu	Glu	Gly	Gln	Asn	Ser	
		755					760					765				



Ile Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala Arg Leu Gln His  
 770 775 780

Ile Gln Thr Cys Leu Ala Gly Asp Leu Leu Phe Met Arg Phe Arg Thr  
 785 790 795 800

Thr Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser Lys Gly Val Glu  
 805 810 815

Tyr Ser Leu Lys Gln Met Val Glu Glu Tyr Gly Trp Glu Asp Met Glu  
 820 825 830

Val Val Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro Ala Ala  
 835 840 845

Ile Asn Trp Ile Glu Gly Arg Gly Lys Ser Val Val Ala Glu Ala Thr  
 850 855 860

Ile Pro Gly Asp Val Val Lys Ser Val Leu Lys Ser Asp Val Ser Ala  
 865 870 875 880

Leu Val Glu Leu Asn Ile Ser Lys Asn Leu Val Gly Ser Ala Met Ala  
 885 890 895

Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn Leu Val Thr Ala  
 900 905 910

Leu Phe Leu Ala Leu Gly Gln Asp Pro Ala Gln Asn Val Glu Ser Ser  
 915 920 925

Asn Cys Ile Thr Leu Met Lys Glu Val Asp Gly Asp Leu Arg Ile Ser  
 930 935 940

Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile Gly Gly Gly Thr Val  
 945 950 955 960

Leu Glu Pro Gln Gly Ala Met Leu Asp Leu Leu Gly Val Arg Gly Pro  
 965 970 975

His Pro Thr Glu Pro Gly Ala Asn Ala Arg Gln Leu Ala Arg Ile Ile  
 980 985 990

Ala Cys Ala Val Leu Ala Gly Glu Leu Ser Leu Cys Ser Ala Leu Ala  
 995 1000 1005



Ala Gly His Leu Val Gln Ser His Met Thr His Asn Arg Lys Thr  
1010 1015 1020

Asn Lys Ala Asn Glu Leu Pro Gln Pro Ser Asn Lys Gly Pro Pro  
1025 1030 1035

Cys Lys Thr Ser Ala Leu Leu  
1040 1045

<210> 265  
<211> 833  
<212> PRT  
<213> Saccharomyces cerevisiae

<400> 265

Met Ile Thr Leu Leu Leu Tyr Leu Cys Val Ile Cys Asn Ala Ile Val  
1 5 10 15

Leu Ile Arg Ala Asp Ser Ile Ala Asp Pro Trp Pro Glu Ala Arg His  
20 25 30

Leu Leu Asn Thr Ile Ala Lys Ser Arg Asp Pro Met Lys Glu Ala Ala  
35 40 45

Met Glu Pro Asn Ala Asp Glu Phe Val Gly Phe Tyr Val Pro Met Asp  
50 55 60

Tyr Ser Pro Arg Asn Glu Glu Lys Asn Tyr Gln Ser Ile Trp Gln Asn  
65 70 75 80

Glu Ile Thr Asp Ser Gln Arg His Ile Tyr Glu Leu Leu Val Gln Ser  
85 90 95

Ser Glu Gln Phe Asn Asn Ser Glu Ala Thr Tyr Thr Leu Ser Gln Ile  
100 105 110

His Leu Trp Ser Gln Tyr Asn Phe Pro His Asn Met Thr Leu Ala His  
115 120 125

Lys Tyr Leu Glu Lys Phe Asn Asp Leu Thr His Phe Thr Asn His Ser  
130 135 140

Ala Ile Phe Asp Leu Ala Val Met Tyr Ala Thr Gly Gly Cys Ala Ser  
145 150 155 160

Gly Asn Asp Gln Thr Val Ile Pro Gln Asp Ser Ala Lys Ala Leu Leu

				165						170						175
Tyr	Tyr	Gln	Arg	Ala	Ala	Gln	Leu	Gly	Asn	Leu	Lys	Ala	Lys	Gln	Val	
			180					185					190			
Leu	Ala	Tyr	Lys	Tyr	Tyr	Ser	Gly	Phe	Asn	Val	Pro	Arg	Asn	Phe	His	
		195					200					205				
Lys	Ser	Leu	Val	Leu	Tyr	Arg	Asp	Ile	Ala	Glu	Gln	Leu	Arg	Lys	Ser	
	210					215					220					
Tyr	Ser	Arg	Asp	Glu	Trp	Asp	Ile	Val	Phe	Pro	Tyr	Trp	Glu	Ser	Tyr	
225					230					235					240	
Asn	Val	Arg	Ile	Ser	Asp	Phe	Glu	Ser	Gly	Leu	Leu	Gly	Lys	Gly	Leu	
				245					250					255		
Asn	Ser	Val	Pro	Ser	Ser	Thr	Val	Arg	Lys	Arg	Thr	Thr	Arg	Pro	Asp	
			260					265					270			
Ile	Gly	Ser	Pro	Phe	Ile	Ala	Gln	Val	Asn	Gly	Val	Gln	Met	Thr	Leu	
		275					280					285				
Gln	Ile	Glu	Pro	Met	Gly	Arg	Phe	Ala	Phe	Asn	Gly	Asn	Asp	Gly	Asn	
	290					295					300					
Ile	Asn	Gly	Asp	Glu	Asp	Asp	Glu	Asp	Ala	Ser	Glu	Arg	Arg	Ile	Ile	
305					310					315					320	
Arg	Ile	Tyr	Tyr	Ala	Ala	Leu	Asn	Asp	Tyr	Lys	Gly	Thr	Tyr	Ser	Gln	
				325					330					335		
Ser	Arg	Asn	Cys	Glu	Arg	Ala	Lys	Asn	Leu	Leu	Glu	Leu	Thr	Tyr	Lys	
			340					345					350			
Glu	Phe	Gln	Pro	His	Val	Asp	Asn	Leu	Asp	Pro	Leu	Gln	Val	Phe	Tyr	
		355					360					365				
Tyr	Val	Arg	Cys	Leu	Gln	Leu	Leu	Gly	His	Met	Tyr	Phe	Thr	Gly	Glu	
	370					375					380					
Gly	Ser	Ser	Lys	Pro	Asn	Ile	His	Met	Ala	Glu	Glu	Ile	Leu	Thr	Thr	
385					390					395					400	
Ser	Leu	Glu	Ile	Ser	Arg	Arg	Ala	Gln	Gly	Pro	Ile	Gly	Arg	Ala	Cys	
				405					410					415		

Ile Asp Leu Gly Leu Ile Asn Gln Tyr Ile Thr Asn Asn Ile Ser Gln  
420 425 430

Ala Ile Ser Tyr Tyr Met Lys Ala Met Lys Thr Gln Ala Asn Asn Gly  
435 440 445

Ile Val Glu Phe Gln Leu Ser Lys Leu Ala Thr Ser Phe Pro Glu Glu  
450 455 460

Lys Ile Gly Asp Pro Phe Asn Leu Met Glu Thr Ala Tyr Leu Asn Gly  
465 470 475 480

Phe Ile Pro Ala Ile Tyr Glu Phe Ala Val Met Ile Glu Ser Gly Met  
485 490 495

Asn Ser Lys Ser Ser Val Glu Asn Thr Ala Tyr Leu Phe Lys Thr Phe  
500 505 510

Val Asp Lys Asn Glu Ala Ile Met Ala Pro Lys Leu Arg Thr Ala Phe  
515 520 525

Ala Ala Leu Ile Asn Asp Arg Ser Glu Val Ala Leu Trp Ala Tyr Ser  
530 535 540

Gln Leu Ala Glu Gln Gly Tyr Glu Thr Ala Gln Val Ser Ala Ala Tyr  
545 550 555 560

Leu Met Tyr Gln Leu Pro Tyr Glu Phe Glu Asp Pro Pro Arg Thr Thr  
565 570 575

Asp Gln Arg Lys Thr Leu Ala Ile Ser Tyr Tyr Thr Arg Ala Phe Lys  
580 585 590

Gln Gly Asn Ile Asp Ala Gly Val Val Ala Gly Asp Ile Tyr Phe Gln  
595 600 605

Met Gln Asn Tyr Ser Lys Ala Met Ala Leu Tyr Gln Gly Ala Ala Leu  
610 615 620

Lys Tyr Ser Ile Gln Ala Ile Trp Asn Leu Gly Tyr Met His Glu His  
625 630 635 640

Gly Leu Gly Val Asn Arg Asp Phe His Leu Ala Lys Arg Tyr Tyr Asp  
645 650 655

Gln Val Ser Glu His Asp His Arg Phe Tyr Leu Ala Ser Lys Leu Ser  
660 665 670

Val Leu Lys Leu His Leu Lys Ser Trp Leu Thr Trp Ile Thr Arg Glu  
675 680 685

Lys Val Asn Tyr Trp Lys Pro Ser Ser Pro Leu Asn Pro Asn Glu Asp  
690 695 700

Thr Gln His Ser Lys Thr Ser Trp Tyr Lys Gln Leu Thr Lys Ile Leu  
705 710 715 720

Gln Arg Met Arg His Lys Glu Asp Ser Asp Lys Ala Ala Glu Asp Ser  
725 730 735

His Lys His Arg Thr Val Val Gln Asn Gly Ala Asn His Arg Gly Asp  
740 745 750

Asp Gln Glu Glu Ala Ser Glu Ile Leu Gly Phe Gln Met Glu Asp Leu  
755 760 765

Val Thr Met Gly Cys Ile Leu Gly Ile Phe Leu Leu Ser Ile Leu Met  
770 775 780

Ser Thr Leu Ala Ala Arg Arg Gly Trp Asn Val Arg Phe Asn Gly Ala  
785 790 795 800

Gln Leu Asn Ala Asn Gly Asn Arg Gln Gln Glu Gln Gln Gln Gln  
805 810 815

Gln Ala Gln Gly Pro Pro Gly Trp Asp Phe Asn Val Gln Ile Phe Ala  
820 825 830

Ile

<210> 266  
<211> 887  
<212> PRT  
<213> Mesocricetus auratus

<400> 266

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met

	20		25		30														
Ser	Met	Asn	Met	Phe	Thr	Gly	Asn	Asn	Lys	Ile	Cys	Gly	Trp	Asn	Tyr				
	35						40					45							
Glu	Cys	Pro	Lys	Phe	Glu	Glu	Asp	Val	Leu	Ser	Ser	Asp	Ile	Ile	Ile				
	50					55					60								
Leu	Thr	Ile	Thr	Arg	Cys	Ile	Ala	Ile	Leu	Tyr	Ile	Tyr	Phe	Gln	Phe				
65					70					75					80				
Gln	Asn	Leu	Arg	Gln	Leu	Gly	Ser	Lys	Tyr	Ile	Leu	Gly	Ile	Ala	Gly				
				85					90					95					
Leu	Phe	Thr	Ile	Phe	Ser	Ser	Phe	Val	Phe	Ser	Thr	Val	Val	Ile	His				
			100					105						110					
Phe	Leu	Asp	Lys	Glu	Leu	Thr	Gly	Leu	Asn	Glu	Ala	Leu	Pro	Phe	Phe				
		115					120					125							
Leu	Leu	Leu	Ile	Asp	Leu	Ser	Arg	Ala	Ser	Ala	Leu	Ala	Lys	Phe	Ala				
	130					135					140								
Leu	Ser	Ser	Asn	Ser	Gln	Asp	Glu	Val	Arg	Glu	Asn	Ile	Ala	Arg	Gly				
145					150					155					160				
Met	Ala	Ile	Leu	Gly	Pro	Thr	Phe	Thr	Leu	Asp	Ala	Leu	Val	Glu	Cys				
				165					170					175					
Leu	Val	Ile	Gly	Val	Gly	Thr	Met	Ser	Gly	Val	Arg	Gln	Leu	Glu	Ile				
			180					185					190						
Met	Cys	Cys	Phe	Gly	Cys	Met	Ser	Val	Leu	Ala	Asn	Tyr	Phe	Val	Phe				
		195					200					205							
Met	Thr	Phe	Phe	Pro	Ala	Cys	Val	Ser	Leu	Val	Leu	Glu	Leu	Ser	Arg				
	210					215					220								
Glu	Ser	Arg	Glu	Gly	Arg	Pro	Ile	Trp	Gln	Leu	Ser	His	Phe	Ala	Arg				
225					230					235					240				
Val	Leu	Glu	Glu	Glu	Glu	Asn	Lys	Pro	Asn	Pro	Val	Thr	Gln	Arg	Val				
				245					250					255					
Lys	Met	Ile	Met	Ser	Leu	Gly	Leu	Val	Leu	Val	His	Ala	His	Ser	Arg				
			260					265					270						

Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Thr Glu His Ser Lys  
 275 280 285  
 Val Ser Leu Gly Leu Asp Glu Asp Val Ser Lys Arg Ile Glu Pro Ser  
 290 295 300  
 Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile  
 305 310 315 320  
 Glu Gln Val Val Thr Leu Ser Leu Ala Phe Leu Leu Ala Val Lys Tyr  
 325 330 335  
 Ile Phe Phe Glu Gln Ala Glu Thr Glu Ser Thr Leu Ser Leu Lys Asn  
 340 345 350  
 Pro Ile Thr Ser Pro Val Val Thr Pro Lys Lys Ala Pro Asp Asn Cys  
 355 360 365  
 Cys Arg Arg Glu Pro Leu Leu Val Arg Arg Ser Glu Lys Leu Ser Ser  
 370 375 380  
 Val Glu Glu Glu Pro Gly Val Ser Gln Asp Arg Lys Val Glu Val Ile  
 385 390 395 400  
 Lys Pro Leu Val Val Glu Thr Glu Ser Ala Ser Arg Ala Thr Phe Val  
 405 410 415  
 Leu Gly Ala Ser Gly Thr Ser Pro Pro Val Ala Ala Arg Thr Gln Glu  
 420 425 430  
 Leu Glu Ile Glu Leu Pro Ser Glu Pro Arg Pro Asn Glu Glu Cys Leu  
 435 440 445  
 Gln Ile Leu Glu Ser Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp Ala  
 450 455 460  
 Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys Leu  
 465 470 475 480  
 Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg Gln  
 485 490 495  
 Leu Leu Ser Thr Lys Leu Pro Glu Pro Ser Ser Leu Gln Tyr Leu Pro  
 500 505 510

Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu Asn  
515 520 525

Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu Cys  
530 535 540

Leu Asp Gly Lys Glu Tyr Gln Val Pro Met Ala Thr Thr Glu Gly Cys  
545 550 555 560

Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly Gly  
565 570 575

Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro Val  
580 585 590

Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp Leu  
595 600 605

Glu Thr Pro Glu Gly Phe Ala Val Ile Lys Asp Ala Phe Asp Ser Thr  
610 615 620

Ser Arg Phe Ala Arg Leu Gln Lys Leu His Val Thr Met Ala Gly Arg  
625 630 635 640

Asn Leu Tyr Ile Arg Phe Gln Ser Lys Thr Gly Asp Ala Met Gly Met  
645 650 655

Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Leu Lys Leu Gln Glu  
660 665 670

Phe Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys Thr  
675 680 685

Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys Thr  
690 695 700

Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val Leu  
705 710 715 720

Lys Thr Thr Thr Glu Ala Met Ile Asp Val Asn Ile Asn Lys Asn Leu  
725 730 735

Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His Ala  
740 745 750



Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala Ala  
755 760 765

Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser Gly  
770 775 780

Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile Glu  
785 790 795 800

Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala Cys  
805 810 815

Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly Glu  
820 825 830

Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala Gly  
835 840 845

Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Arg Ser  
850 855 860

His Met Val His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln Gly  
865 870 875 880

Thr Cys Thr Lys Lys Ser Ala  
885

<210> 267  
<211> 1176  
<212> PRT  
<213> Phycomyces blakesleeianus

<400> 267

Met Ser Leu Pro Asn His Ser Gly Ser Ser Ala Phe Lys Ser Phe Ser  
1 5 10 15

Tyr Ile Val Gly Thr Gly Ile Lys Arg Ala Ala Lys Leu Ser Thr Arg  
20 25 30

Asn Pro Ile Glu Met Ile Val Val Val Leu Ile Leu Ser Ser Phe Ser  
35 40 45

Tyr Phe Tyr Leu Phe Asn Leu Ala Arg Thr Ser Asp Ile Phe Ser Gly  
50 55 60

Thr Val Thr Arg Leu Tyr Pro Thr Ser Val Tyr Ala Pro Thr Lys Asp  
65 70 75 80

His Ser Phe Ser Val Val Asp Arg Thr Ala Asp Ser Thr Ile Ala Asn  
85 90 95

Asn Ala Val Lys Val His Leu His Gln Ile Val Val Ser Asp Pro Lys  
100 105 110

His Gly Val Leu Ser Arg Gln Thr Leu Ala Ser Val Leu Arg Phe Gln  
115 120 125

Gln Met Ala Glu Asn Glu Ile Tyr Val Pro Asp Ser Thr Ala Val Asn  
130 135 140

Arg Phe Ala Phe Asn Lys Asp Leu Cys Tyr Lys Thr Thr Leu Pro Ser  
145 150 155 160

Ser Tyr Ser Ser His Ser Ser Asp Ser Asn Ser Asn Ser Asn Leu Asn  
165 170 175

Ser Lys Thr Ser Pro Cys Phe Ala His Ser Pro Ala Asp Ile Trp Gln  
180 185 190

Asp Glu Ala Thr Leu Leu Ala Asp Lys Asn Ile Arg Ser Thr Ile Glu  
195 200 205

Ala Asn Leu Asp Thr Ala Lys Asn Val Phe Gly Asp Leu Gln Leu Asn  
210 215 220

Ala Thr Tyr Ala Ser Ser Val Thr Leu Ser Tyr Ala Phe Asn Thr Thr  
225 230 235 240

Gly Asp Tyr Arg Glu His Leu Ala Asp Met Trp Lys His Lys Val Ala  
245 250 255

Thr Leu Pro Pro Ala Asp Leu Val Ser Leu Ser Asn Ile Gly Gln Gln  
260 265 270

Glu Asn Val Phe Ala Trp Leu Phe Ile Val Thr Arg Asn Val Ile Phe  
275 280 285

Arg Val Lys Glu Leu Ile Asp Leu Ala Asp Asn Ile Asp Ile Ile Val  
290 295 300

Ile Leu Val Gly Tyr Ile Met Met Ile Ala Thr Phe Ile Ser Leu Tyr  
305 310 315 320

Val Asn Met Arg Ala Met Gly Ser Arg Tyr Thr Leu Ala Thr Ala Val  
 325 330 335

Val Phe Asn Gly Phe Phe Ser Phe Met Leu Ala Leu Leu Thr Val Arg  
 340 345 350

Ala Leu Gly Val Asp Val Tyr Pro Val Val Leu Ala Glu Ala Ile Pro  
 355 360 365

Phe Leu Ala Val Thr Ile Gly Phe Glu Arg Pro Phe Lys Leu Thr Lys  
 370 375 380

Arg Val Phe Gln Phe Ser Lys Glu Thr Pro Leu Thr Lys Gln Glu Ile  
 385 390 395 400

Arg Thr Thr Ile Met Arg Ala Val Asp Thr Val Ala Leu Pro Ile Ala  
 405 410 415

Arg Asp Cys Phe Met Glu Ile Ile Val Leu Val Leu Gly Ala Lys Ser  
 420 425 430

Gly Ile Ser Gly Leu Glu Glu Phe Cys Leu Leu Ser Ala Ile Leu Leu  
 435 440 445

Ala Tyr Asp Phe Ile Ile Met Phe Thr Trp Tyr Thr Ala Val Leu Ala  
 450 455 460

Leu Lys Leu Glu Leu Leu Arg Ile Arg Glu Ile Asn Gly Ile Ser Ala  
 465 470 475 480

Asp Asp Ile Lys Lys Gly Thr Lys Lys Ser Thr Gly Tyr Ile Arg Arg  
 485 490 495

Thr Val Ile Lys Ala Phe Ser Asp Asp His Ala Ala Gly Ala Asn Thr  
 500 505 510

Ala Asn Gln Lys Ala Asp Gly Pro Ile Ile Gly Arg Val Lys Leu Leu  
 515 520 525

Met Ile Val Gly Phe Val Val Met His Ile Phe Lys Phe Cys Ser Ala  
 530 535 540

Phe Gln Ser Val Gly Pro Gln Val Asn Ile Thr Glu Pro Ser Ile Ala  
 545 550 555 560

Val Val Leu Asp Gln Leu Leu Glu Gln His Lys Ala Ser Ser Gln Ala  
565 570 575  
Ser Leu Pro Leu Phe Val Gln Val Phe Pro Ala Met Pro Phe His Val  
580 585 590  
Ala Thr Val Asn Lys Ser Phe Val Pro Asp Ala Ile Thr Arg Pro Leu  
595 600 605  
Glu Ala Leu Phe Asp Thr Tyr Ala Val Tyr Ile Gln His Pro Val Ile  
610 615 620  
Ser Lys Trp Leu Thr Ile Ala Leu Phe Val Ser Leu Phe Leu Asn Thr  
625 630 635 640  
Tyr Leu Phe Asn Val Ala Lys Gln Pro Lys Gln Ile Val Glu Gln Val  
645 650 655  
Asn Gln Asp Lys Lys Ile Thr Asn Ala Ile Glu Ser Thr Asn Asn Thr  
660 665 670  
His Ile Glu Val Thr Glu Lys Gln Lys Pro Thr Ile Gln Ser Pro Gly  
675 680 685  
Pro Val Val Ser Ser Ala Val Val Met Ser Pro Asn His Lys Arg Ser  
690 695 700  
His Asn His His His Ser His Ser His Ser His Asn His His Ser Asn  
705 710 715 720  
His His Gln Ser Asp Ile Val Arg Pro Ile Asp Glu Cys Val Ala Leu  
725 730 735  
Val Arg Thr Pro Glu Met Leu Asn Asp Glu Glu Val Ile Ser Leu Val  
740 745 750  
Glu Asn Gly Lys Met Ala Ser Tyr Ala Leu Glu Lys Val Leu Gly Asp  
755 760 765  
Leu Gln Arg Ala Val Gly Ile Arg Arg Ala Leu Ile Ser Arg Ala Ser  
770 775 780  
Ile Thr Lys Thr Leu Glu Ala Ser Ala Leu Pro Leu Glu Asn Tyr His  
785 790 795 800  
Tyr Asp Lys Val Met Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr Met



Glu Ser Ser Asn Cys Ile Thr Leu Met Lys Ala Val Asn Asp Thr  
 1055 1060 1065

Lys Asp Leu His Ile Ser Cys Thr Met Pro Ser Ile Glu Val Gly  
 1070 1075 1080

Thr Ile Gly Gly Gly Thr Ile Leu Pro Pro Gln Gln Ser Met Leu  
 1085 1090 1095

Asp Met Leu Gly Val Arg Gly Pro His Pro Thr Glu Pro Gly Lys  
 1100 1105 1110

Asn Ala Gln Arg Leu Ala Arg Ile Ile Cys Ala Ala Val Met Ala  
 1115 1120 1125

Gly Glu Leu Ser Leu Cys Ala Ala Leu Ala Ala Gly His Leu Val  
 1130 1135 1140

Lys Ala His Met Ala His Asn Arg Gly Thr Gln Ala Pro Thr Ile  
 1145 1150 1155

Thr Ser Gly Pro Ala Pro Ser Thr Gly Thr Glu Pro Gly Thr Cys  
 1160 1165 1170

Ile Lys Ser  
 1175

<210> 268  
 <211> 888  
 <212> PRT  
 <213> HUMAN

<400> 268

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
 20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
 35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
 50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
 65 70 75 80  
 Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
 85 90 95  
 Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110  
 Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125  
 Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Thr Leu Ala Lys Phe Ala  
 130 135 140  
 Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly  
 145 150 155 160  
 Met Ala Ile Leu Gly Pro Thr Phe Thr Leu Asp Ala Leu Val Glu Cys  
 165 170 175  
 Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Arg Gln Leu Glu Ile  
 180 185 190  
 Met Cys Cys Phe Gly Cys Met Ser Val Leu Ala Asn Tyr Phe Val Phe  
 195 200 205  
 Met Thr Phe Phe Pro Ala Cys Val Ser Leu Val Leu Glu Leu Ser Arg  
 210 215 220  
 Glu Ser Arg Glu Gly Arg Pro Ile Trp Gln Leu Ser His Phe Ala Arg  
 225 230 235 240  
 Val Leu Glu Glu Glu Glu Asn Lys Pro Asn Pro Val Thr Gln Arg Val  
 245 250 255  
 Lys Met Ile Met Ser Leu Gly Leu Val Leu Val His Ala His Ser Arg  
 260 265 270  
 Trp Ile Ala Asp Pro Ser Pro Gln Asn Ser Thr Ala Asp Thr Ser Lys  
 275 280 285  
 Val Ser Leu Gly Leu Asp Glu Asn Val Ser Lys Arg Ile Glu Pro Ser  
 290 295 300  
 Val Ser Leu Trp Gln Phe Tyr Leu Ser Lys Met Ile Ser Met Asp Ile

305		310		315		320									
Glu	Gln	Val	Ile	Thr	Leu	Ser	Leu	Ala	Leu	Leu	Leu	Ala	Val	Lys	Tyr
			325						330					335	
Ile	Phe	Phe	Glu	Gln	Thr	Glu	Thr	Glu	Ser	Thr	Leu	Ser	Leu	Lys	Asn
			340					345					350		
Pro	Ile	Thr	Ser	Pro	Val	Val	Thr	Gln	Lys	Lys	Val	Pro	Asp	Asn	Cys
		355					360					365			
Cys	Arg	Arg	Glu	Pro	Met	Leu	Val	Arg	Asn	Asn	Gln	Lys	Cys	Asp	Ser
	370					375					380				
Val	Glu	Glu	Glu	Thr	Gly	Ile	Asn	Arg	Glu	Arg	Lys	Val	Glu	Val	Ile
385					390					395					400
Lys	Pro	Leu	Val	Ala	Glu	Thr	Asp	Thr	Pro	Asn	Arg	Ala	Thr	Phe	Val
				405					410					415	
Val	Gly	Asn	Ser	Ser	Leu	Leu	Asp	Thr	Ser	Ser	Val	Leu	Val	Thr	Gln
			420					425					430		
Glu	Pro	Glu	Ile	Glu	Leu	Pro	Arg	Glu	Pro	Arg	Pro	Asn	Glu	Glu	Cys
		435					440					445			
Leu	Gln	Ile	Leu	Gly	Asn	Ala	Glu	Lys	Gly	Ala	Lys	Phe	Leu	Ser	Asp
	450					455					460				
Ala	Glu	Ile	Ile	Gln	Leu	Val	Asn	Ala	Lys	His	Ile	Pro	Ala	Tyr	Lys
465					470					475					480
Leu	Glu	Thr	Leu	Met	Glu	Thr	His	Glu	Arg	Gly	Val	Ser	Ile	Arg	Arg
				485					490					495	
Gln	Leu	Leu	Ser	Lys	Lys	Leu	Ser	Glu	Pro	Ser	Ser	Leu	Gln	Tyr	Leu
			500					505					510		
Pro	Tyr	Arg	Asp	Tyr	Asn	Tyr	Ser	Leu	Val	Met	Gly	Ala	Cys	Cys	Glu
		515					520					525			
Asn	Val	Ile	Gly	Tyr	Met	Pro	Ile	Pro	Val	Gly	Val	Ala	Gly	Pro	Leu
	530					535					540				
Cys	Leu	Asp	Glu	Lys	Glu	Phe	Gln	Val	Pro	Met	Ala	Thr	Thr	Glu	Gly
545					550					555					560



Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly  
565 570 575

Gly Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro  
580 585 590

Val Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp  
595 600 605

Leu Glu Thr Ser Glu Gly Phe Ala Val Ile Lys Glu Ala Phe Asp Ser  
610 615 620

Thr Ser Arg Phe Ala Arg Leu Gln Lys Leu His Thr Ser Ile Ala Gly  
625 630 635 640

Arg Asn Leu Tyr Ile Arg Phe Gln Ser Arg Ser Gly Asp Ala Met Gly  
645 650 655

Met Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Ser Lys Leu His  
660 665 670

Glu Tyr Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys  
675 680 685

Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys  
690 695 700

Ser Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val  
705 710 715 720

Leu Lys Thr Thr Thr Glu Ala Met Ile Glu Val Asn Ile Asn Lys Asn  
725 730 735

Leu Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His  
740 745 750

Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala  
755 760 765

Ala Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser  
770 775 780

Gly Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile  
785 790 795 800

Glu Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala  
805 810 815

Cys Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly  
820 825 830

Glu Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala  
835 840 845

Gly Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Lys  
850 855 860

Ser His Met Ile His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln  
865 870 875 880

Gly Ala Cys Thr Lys Lys Thr Ala  
885

<210> 269  
<211> 888  
<212> PRT  
<213> Human

<400> 269

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asn Lys Ile Cys Gly Trp Asn Tyr  
35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe

115	120	125															
Leu	Leu	Leu	Ile	Asp	Leu	Ser	Arg	Ala	Ser	Thr	Leu	Ala	Lys	Phe	Ala		
130						135					140						
Leu	Ser	Ser	Asn	Ser	Gln	Asp	Glu	Val	Arg	Glu	Asn	Ile	Ala	Arg	Gly		
145					150					155					160		
Met	Ala	Ile	Leu	Gly	Pro	Thr	Phe	Thr	Leu	Asp	Ala	Leu	Val	Glu	Cys		
				165					170					175			
Leu	Val	Ile	Gly	Val	Gly	Thr	Met	Ser	Gly	Val	Arg	Gln	Leu	Glu	Ile		
			180					185					190				
Met	Cys	Cys	Phe	Gly	Cys	Met	Ser	Val	Leu	Ala	Asn	Tyr	Phe	Val	Phe		
		195					200					205					
Met	Thr	Phe	Phe	Pro	Ala	Cys	Val	Ser	Leu	Val	Leu	Glu	Leu	Ser	Arg		
	210					215					220						
Glu	Ser	Arg	Glu	Gly	Arg	Pro	Ile	Trp	Gln	Leu	Ser	His	Phe	Ala	Arg		
225					230					235					240		
Val	Leu	Glu	Glu	Glu	Glu	Asn	Lys	Pro	Asn	Pro	Val	Thr	Gln	Arg	Val		
				245					250					255			
Lys	Met	Ile	Met	Ser	Leu	Gly	Leu	Val	Leu	Val	His	Ala	His	Ser	Arg		
			260					265					270				
Trp	Ile	Ala	Asp	Pro	Ser	Pro	Gln	Asn	Ser	Thr	Ala	Asp	Thr	Ser	Lys		
		275					280					285					
Val	Ser	Leu	Gly	Leu	Asp	Glu	Asn	Val	Ser	Lys	Arg	Ile	Glu	Pro	Ser		
	290					295					300						
Val	Ser	Leu	Trp	Gln	Phe	Tyr	Leu	Ser	Lys	Met	Ile	Ser	Met	Asp	Ile		
305					310					315					320		
Glu	Gln	Val	Ile	Thr	Leu	Ser	Leu	Ala	Leu	Leu	Leu	Ala	Val	Lys	Tyr		
				325					330					335			
Ile	Phe	Phe	Glu	Gln	Thr	Glu	Thr	Glu	Ser	Thr	Leu	Ser	Leu	Lys	Asn		
			340					345					350				
Pro	Ile	Thr	Ser	Pro	Val	Val	Thr	Gln	Lys	Lys	Val	Pro	Asp	Asn	Cys		
		355					360					365					

Cys Arg Arg Glu Pro Met Leu Val Arg Asn Asn Gln Lys Cys Asp Ser  
 370 375 380

Val Glu Glu Glu Thr Gly Ile Asn Arg Glu Arg Lys Val Glu Val Ile  
 385 390 395 400

Lys Pro Leu Val Ala Glu Thr Asp Thr Pro Asn Arg Ala Thr Phe Val  
 405 410 415

Val Gly Asn Ser Ser Leu Leu Asp Thr Ser Ser Val Leu Val Thr Gln  
 420 425 430

Glu Pro Glu Ile Glu Leu Pro Arg Glu Pro Arg Pro Asn Glu Glu Cys  
 435 440 445

Leu Gln Ile Leu Gly Asn Ala Glu Lys Gly Ala Lys Phe Leu Ser Asp  
 450 455 460

Ala Glu Ile Ile Gln Leu Val Asn Ala Lys His Ile Pro Ala Tyr Lys  
 465 470 475 480

Leu Glu Thr Leu Met Glu Thr His Glu Arg Gly Val Ser Ile Arg Arg  
 485 490 495

Gln Leu Leu Ser Lys Lys Leu Ser Glu Pro Ser Ser Leu Gln Tyr Leu  
 500 505 510

Pro Tyr Arg Asp Tyr Asn Tyr Ser Leu Val Met Gly Ala Cys Cys Glu  
 515 520 525

Asn Val Ile Gly Tyr Met Pro Ile Pro Val Gly Val Ala Gly Pro Leu  
 530 535 540

Cys Leu Asp Glu Lys Glu Phe Gln Val Pro Met Ala Thr Thr Glu Gly  
 545 550 555 560

Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Ile Gly Leu Gly  
 565 570 575

Gly Gly Ala Ser Ser Arg Val Leu Ala Asp Gly Met Thr Arg Gly Pro  
 580 585 590

Val Val Arg Leu Pro Arg Ala Cys Asp Ser Ala Glu Val Lys Ala Trp  
 595 600 605

Leu Glu Thr Ser Glu Gly Phe Ala Val Ile Lys Glu Ala Phe Asp Ser  
610 615 620

Thr Ser Arg Phe Ala Arg Leu Gln Lys Leu His Thr Ser Ile Ala Gly  
625 630 635 640

Arg Asn Leu Tyr Ile Arg Phe Gln Ser Arg Ser Gly Asp Ala Met Gly  
645 650 655

Met Asn Met Ile Ser Lys Gly Thr Glu Lys Ala Leu Ser Lys Leu His  
660 665 670

Glu Tyr Phe Pro Glu Met Gln Ile Leu Ala Val Ser Gly Asn Tyr Cys  
675 680 685

Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg Gly Lys  
690 695 700

Ser Val Val Cys Glu Ala Val Ile Pro Ala Lys Val Val Arg Glu Val  
705 710 715 720

Leu Lys Thr Thr Thr Glu Ala Met Ile Glu Val Asn Ile Asn Lys Asn  
725 730 735

Leu Val Gly Ser Ala Met Ala Gly Ser Ile Gly Gly Tyr Asn Ala His  
740 745 750

Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Cys Gly Gln Asp Ala  
755 760 765

Ala Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu Met Glu Ala Ser  
770 775 780

Gly Pro Thr Asn Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro Ser Ile  
785 790 795 800

Glu Ile Gly Thr Val Gly Gly Gly Thr Asn Leu Leu Pro Gln Gln Ala  
805 810 815

Cys Leu Gln Met Leu Gly Val Gln Gly Ala Cys Lys Asp Asn Pro Gly  
820 825 830

Glu Asn Ala Arg Gln Leu Ala Arg Ile Val Cys Gly Thr Val Met Ala  
835 840 845

Gly Glu Leu Ser Leu Met Ala Ala Leu Ala Ala Gly His Leu Val Lys  
850 855 860

Ser His Met Ile His Asn Arg Ser Lys Ile Asn Leu Gln Asp Leu Gln  
865 870 875 880

Gly Ala Cys Thr Lys Lys Thr Ala  
885

<210> 270  
<211> 424  
<212> PRT  
<213> Streptococcus pneumoniae

<400> 270

Met Lys Ile Ser Trp Asn Gly Phe Ser Lys Lys Ser Tyr Gln Glu Arg  
1 5 10 15

Leu Glu Leu Leu Lys Ala Gln Ala Leu Leu Ser Pro Glu Arg Gln Ala  
20 25 30

Ser Leu Glu Lys Asp Glu Gln Met Ser Val Thr Val Ala Asp Gln Leu  
35 40 45

Ser Glu Asn Val Val Gly Thr Phe Ser Leu Pro Tyr Ser Leu Val Pro  
50 55 60

Glu Val Leu Val Asn Gly Gln Gly Tyr Thr Val Pro Tyr Val Thr Glu  
65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Ala Ser Lys Ile Ile Lys  
85 90 95

Arg Ala Gly Gly Phe Thr Ala Gln Val His Gln Arg Gln Met Ile Gly  
100 105 110

Gln Val Ala Leu Tyr Gln Val Ala Asn Pro Lys Leu Ala Gln Glu Lys  
115 120 125

Ile Ala Ser Lys Lys Ala Glu Leu Leu Glu Leu Ala Asn Gln Ala Tyr  
130 135 140

Pro Ser Ile Val Lys Arg Gly Gly Gly Ala Arg Asp Leu His Val Glu  
145 150 155 160

Gln Ile Lys Gly Glu Pro Asp Phe Leu Val Val Tyr Ile His Val Asp  
165 170 175

Thr Gln Glu Ala Met Gly Ala Asn Met Leu Asn Thr Met Leu Glu Ala  
180 185 190

Leu Lys Pro Val Leu Glu Glu Leu Ser Gln Gly Gln Ser Leu Met Gly  
195 200 205

Ile Leu Ser Asn Tyr Ala Thr Asp Ser Leu Val Thr Ala Ser Cys Arg  
210 215 220

Ile Ala Phe Arg Tyr Leu Ser Arg Gln Lys Asp Gln Gly Arg Glu Ile  
225 230 235 240

Ala Glu Lys Ile Ala Leu Ala Ser Gln Phe Ala Gln Ala Asp Pro Tyr  
245 250 255

Arg Ala Ala Thr His Asn Lys Gly Ile Phe Asn Gly Ile Asp Ala Ile  
260 265 270

Leu Ile Ala Thr Gly Asn Asp Trp Arg Ala Ile Glu Ala Gly Ala His  
275 280 285

Ala Phe Ala Ser Arg Asp Gly Arg Tyr Gln Gly Leu Ser Cys Trp Thr  
290 295 300

Leu Asp Leu Glu Arg Glu Glu Leu Val Gly Glu Met Thr Leu Pro Met  
305 310 315 320

Pro Val Ala Thr Lys Gly Gly Ser Ile Gly Leu Asn Pro Arg Val Ala  
325 330 335

Leu Ser His Asp Leu Leu Gly Asn Pro Ser Ala Arg Glu Leu Ala Gln  
340 345 350

Ile Ile Val Ser Ile Gly Leu Ala Gln Asn Phe Ala Ala Leu Lys Ala  
355 360 365

Leu Val Ser Thr Gly Ile Gln Gln Gly His Met Lys Leu Gln Ala Lys  
370 375 380

Ser Leu Ala Leu Leu Ala Gly Ala Ser Glu Ser Glu Val Ala Pro Leu  
385 390 395 400

Val Glu Arg Leu Ile Ser Asp Lys Thr Phe Asn Leu Glu Thr Ala Gln  
405 410 415

Arg Tyr Leu Glu Asn Leu Arg Ser  
420

<210> 271

<211> 425

<212> PRT

<213> Streptococcus pyogenes

<400> 271

Met Thr Lys Thr Asn Leu Asn Trp Ser Gly Phe Ser Lys Lys Thr Phe  
1 5 10 15

Glu Glu Arg Leu Gln Leu Ile Glu Lys Phe Lys Leu Leu Asn Ala Glu  
20 25 30

Asn Leu Asn Gln Leu Lys Thr Asp Val Leu Leu Pro Ile Gln Thr Ala  
35 40 45

Asn Gln Met Thr Glu Asn Val Leu Gly Arg Leu Ala Leu Pro Phe Ser  
50 55 60

Ile Ala Pro Asp Phe Leu Val Asn Gly Ser Thr Tyr Gln Met Pro Phe  
65 70 75 80

Val Thr Glu Glu Pro Ser Val Val Ala Ala Ala Ser Phe Ala Ala Lys  
85 90 95

Leu Ile Lys Arg Ser Gly Gly Phe Lys Ala Gln Thr Leu Asn Arg Gln  
100 105 110

Met Ile Gly Gln Ile Val Leu Tyr Asp Ile Asp Gln Ile Asp Asn Ala  
115 120 125

Lys Ala Ala Ile Leu His Lys Thr Lys Lys Leu Ile Ala Leu Ala Asn  
130 135 140

Lys Ala Tyr Pro Ser Ile Val Lys Arg Gly Gly Gly Ala Arg Thr Ile  
145 150 155 160

His Leu Glu Glu Lys Gly Glu Phe Leu Ile Phe Tyr Leu Thr Val Asp  
165 170 175

Thr Gln Glu Ala Met Gly Ala Asn Met Val Asn Thr Met Met Glu Ala  
180 185 190

Leu Val Pro Asp Leu Thr Arg Leu Ser Lys Gly His Cys Leu Met Ala



195	200	205
Ile Leu Ser Asn Tyr Ala Thr Glu Ser Leu Val Thr Thr Ser Cys Glu 210 215 220		
Ile Pro Val Arg Leu Leu Asp Arg Asp Lys Thr Lys Ser Leu Gln Leu 225 230 235 240		
Ala Gln Lys Ile Glu Leu Ala Ser Arg Leu Ala Gln Val Asp Pro Tyr 245 250 255		
Arg Ala Thr Thr His Asn Lys Gly Ile Phe Asn Gly Ile Asp Ala Val 260 265 270		
Val Ile Ala Thr Gly Asn Asp Trp Arg Ala Ile Glu Ala Gly Ala His 275 280 285		
Ala Tyr Ala Ser Arg Asn Gly Ser Tyr Gln Gly Leu Ser Gln Trp His 290 295 300		
Phe Asp Gln Asp Lys Gln Val Leu Leu Gly Gln Met Thr Leu Pro Met 305 310 315 320		
Pro Ile Ala Ser Lys Gly Gly Ser Ile Gly Leu Asn Pro Thr Val Ser 325 330 335		
Ile Ala His Asp Leu Leu Asn Gln Pro Asp Ala Lys Thr Leu Ala Gln 340 345 350		
Leu Ile Ala Ser Val Gly Leu Ala Gln Asn Phe Ala Ala Leu Lys Ala 355 360 365		
Leu Thr Ser Ser Gly Ile Gln Ala Gly His Met Lys Leu His Ala Lys 370 375 380		
Ser Leu Ala Leu Leu Ala Gly Ala Thr Gln Asp Glu Ile Ala Pro Leu 385 390 395 400		
Val Asn Ala Leu Leu Ala Asp Lys Pro Ile Asn Leu Glu Lys Ala His 405 410 415		
Phe Tyr Leu Ser Gln Leu Arg Gln Ser 420 425		

<210> 272  
<211> 425

<212> PRT  
<213> Staphylococcus epidermidis

<400> 272

Met Lys Ser Leu Asp Lys Gly Phe Arg His Leu Thr Arg Lys Asp Lys  
1 5 10 15

Leu Lys Lys Leu Val Glu Tyr Gly Trp Leu Asp Asp Glu Asn Tyr Glu  
20 25 30

Ile Leu Leu Asn His Pro Leu Ile Asn Glu Glu Val Ala Asn Ser Leu  
35 40 45

Ile Glu Asn Val Ile Gly Gln Gly Ala Leu Pro Val Gly Leu Leu Pro  
50 55 60

Arg Ile Ile Val Asp Asp Lys Glu Tyr Val Val Pro Met Met Val Glu  
65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Gly Ala Lys Leu Val Asn  
85 90 95

Gln Ser Gly Gly Phe Lys Thr Ile Ser Ser Glu Arg Leu Met Ile Gly  
100 105 110

Gln Ile Val Phe Asp Asp Val Glu Asp Thr Gly Thr Leu Ala Asn Ser  
115 120 125

Ile Tyr Gln Ile Glu Ser Gln Ile His Gln Ile Ala Asp Glu Ala Tyr  
130 135 140

Pro Ser Ile Lys Ala Arg Gly Gly Gly Tyr Gln Arg Ile Glu Ile Asp  
145 150 155 160

Thr Phe Pro Asn His Arg Leu Leu Ser Leu Lys Val Phe Val Asp Thr  
165 170 175

Lys Asp Ala Met Gly Ala Asn Met Leu Ile Thr Ile Leu Glu Ala Ile  
180 185 190

Thr Ala His Leu Lys Val Lys Ile Phe Asn Gln Asn Val Leu Met Ser  
195 200 205

Ile Leu Ser Asn His Ala Thr Ala Ser Val Val Gln Val Gln Gly Glu  
210 215 220

Ile Asp Ile Glu Asp Leu His Arg Gly Glu Arg Ser Gly Glu Glu Val  
 225 230 235 240

Ala Gln Arg Met Glu Arg Ala Ser Val Leu Ala Gln Val Asp Ile His  
 245 250 255

Arg Ala Ala Thr His Asn Lys Gly Val Met Asn Gly Ile His Ala Val  
 260 265 270

Val Leu Ala Thr Gly Asn Asp Thr Arg Gly Val Glu Ala Ser Ala His  
 275 280 285

Ala Tyr Ala Ser Lys Asp Gly His Tyr Arg Gly Ile Ala Thr Trp Glu  
 290 295 300

Tyr Asp Arg Ser Arg Asn Lys Leu Val Gly Thr Ile Glu Val Pro Met  
 305 310 315 320

Thr Leu Ala Thr Val Gly Gly Gly Thr Lys Val Leu Pro Ile Ala Lys  
 325 330 335

Ala Ser Leu Asn Leu Leu Asn Val Glu Asn Ala Gln Glu Leu Gly Gln  
 340 345 350

Val Val Ala Ala Val Gly Leu Ala Gln Asn Phe Ser Ala Cys Arg Ala  
 355 360 365

Leu Val Ser Glu Gly Ile Gln Gln Gly His Met Ser Leu Gln Tyr Lys  
 370 375 380

Ser Leu Ala Ile Val Val Gly Ala Lys Gly Glu Glu Ile Ala Gln Val  
 385 390 395 400

Ala Glu Ala Leu Lys Tyr Glu Ser Gln Ala Asn Thr Ala Lys Ala Gln  
 405 410 415

Glu Ile Leu Met Asn Ile Arg Lys Ser  
 420 425

<210> 273

<211> 425

<212> PRT

<213> Staphylococcus haemolyticus

<400> 273

Met Lys Ser Leu Asp Lys Thr Phe Arg His Leu Ser Arg Glu Asp Lys  
 1 5 10 15

Leu Lys Gln Leu Val Asp Tyr Gly Trp Leu Thr Asp Glu Ser Tyr Asp  
 20 25 30

Val Leu Leu Lys Asn Pro Leu Ile Asn Glu Glu Val Ala Asn Ser Leu  
 35 40 45

Ile Glu Asn Val Ile Gly Gln Gly Thr Leu Pro Val Gly Leu Leu Pro  
 50 55 60

Lys Ile Ile Val Asp Asp Lys Glu Tyr Val Val Pro Met Met Val Glu  
 65 70 75 80

Glu Pro Ser Val Val Ala Ala Ala Ser Tyr Gly Ala Lys Leu Val Asn  
 85 90 95

Asn Thr Gly Gly Phe Lys Thr Val Lys Ser Glu Arg Leu Met Ile Gly  
 100 105 110

Gln Ile Val Phe Asp Asp Val Ser Asp Thr Asp Ala Leu Ala Gln Ala  
 115 120 125

Ile Tyr Asp Leu Glu Pro Gln Ile Lys Gln Ile Ala Ala Glu Ala Tyr  
 130 135 140

Pro Ser Ile Ile Glu Arg Gly Gly Gly Tyr Arg Arg Ile Glu Ile Asp  
 145 150 155 160

Thr Phe Pro Glu Asn Gln Leu Leu Ser Leu Lys Val Phe Val Asp Thr  
 165 170 175

Lys Asp Ala Met Gly Ala Asn Met Leu Asn Thr Ile Leu Glu Ala Ile  
 180 185 190

Thr Ala His Met Lys Asn Glu Phe Pro Asn Arg Asp Val Leu Met Ser  
 195 200 205

Ile Leu Ser Asn His Ala Thr Ala Ser Val Val Arg Val Gln Gly Glu  
 210 215 220

Ile Asp Ile Lys Asp Leu Asn Lys Gly Asp Arg Ser Gly Glu Glu Val  
 225 230 235 240

Ala Gln Arg Met Glu Arg Ala Ser Val Leu Ala Gln Val Asp Ile His  
 245 250 255

Arg Ala Ala Thr His Asn Lys Gly Val Met Asn Gly Ile His Ala Val  
 260 265 270

Val Leu Ala Thr Gly Asn Asp Thr Arg Gly Ala Glu Ala Ser Ala His  
 275 280 285

Ala Tyr Ala Ser Arg Asp Gly Gln Tyr Arg Gly Ile Ala Thr Trp Lys  
 290 295 300

Phe Asp Lys Glu Arg Gly Arg Leu Val Gly Thr Ile Glu Val Pro Met  
 305 310 315 320

Thr Leu Ala Ile Val Gly Gly Gly Thr Lys Val Leu Pro Ile Ala Lys  
 325 330 335

Ala Ser Leu Glu Leu Leu Asn Val Gln Ser Ala Gln Glu Leu Gly Gln  
 340 345 350

Val Val Ala Ala Val Gly Leu Ala Gln Asn Phe Ser Ala Cys Arg Ala  
 355 360 365

Leu Val Ser Glu Gly Ile Gln Lys Gly His Met Ser Leu Gln Tyr Lys  
 370 375 380

Ser Leu Ala Ile Val Val Gly Ala Gln Gly Asp Glu Ile Ala Arg Val  
 385 390 395 400

Ala Glu Ala Leu Lys Ala Ala Pro Lys Ala Asn Thr Ala Thr Ala Gln  
 405 410 415

Gln Ile Leu Lys Asp Leu Arg Gln Gln  
 420 425

<210> 274  
 <211> 425  
 <212> PRT  
 <213> Staphylococcus aureus

<400> 274

Met Gln Ser Leu Asp Lys Asn Phe Arg His Leu Ser Arg Gln Gln Lys  
 1 5 10 15

Leu Gln Gln Leu Val Asp Lys Gln Trp Leu Ser Glu Asp Gln Phe Asp  
 20 25 30

Ile Leu Leu Asn His Pro Leu Ile Asp Glu Glu Val Ala Asn Ser Leu

35					40					45					
Ile	Glu	Asn	Val	Ile	Ala	Gln	Gly	Ala	Leu	Pro	Val	Gly	Leu	Leu	Pro
50						55					60				
Asn	Ile	Ile	Val	Asp	Asp	Lys	Ala	Tyr	Val	Val	Pro	Met	Met	Val	Glu
65					70					75					80
Glu	Pro	Ser	Val	Val	Ala	Ala	Ala	Ser	Tyr	Gly	Ala	Lys	Leu	Val	Asn
				85					90					95	
Gln	Thr	Gly	Gly	Phe	Lys	Thr	Val	Ser	Ser	Glu	Arg	Ile	Met	Ile	Gly
			100					105					110		
Gln	Ile	Val	Phe	Asp	Gly	Val	Asp	Asp	Thr	Glu	Lys	Leu	Ser	Ala	Asp
		115					120					125			
Ile	Lys	Ala	Leu	Glu	Lys	Gln	Ile	His	Lys	Ile	Ala	Asp	Glu	Ala	Tyr
	130					135					140				
Pro	Ser	Ile	Lys	Ala	Arg	Gly	Gly	Gly	Tyr	Gln	Arg	Ile	Ala	Ile	Asp
145					150					155					160
Thr	Phe	Pro	Glu	Gln	Gln	Leu	Leu	Ser	Leu	Lys	Val	Phe	Val	Asp	Thr
				165					170					175	
Lys	Asp	Ala	Met	Gly	Ala	Asn	Met	Leu	Asn	Thr	Ile	Leu	Glu	Ala	Ile
			180					185					190		
Thr	Ala	Phe	Leu	Lys	Asn	Glu	Ser	Pro	Gln	Ser	Asp	Ile	Leu	Met	Ser
		195					200					205			
Ile	Leu	Ser	Asn	His	Ala	Thr	Ala	Ser	Val	Val	Lys	Val	Gln	Gly	Glu
	210					215					220				
Ile	Asp	Val	Lys	Asp	Leu	Ala	Arg	Gly	Glu	Arg	Thr	Gly	Glu	Glu	Val
225					230					235					240
Ala	Lys	Arg	Met	Glu	Arg	Ala	Ser	Val	Leu	Ala	Gln	Val	Asp	Ile	His
				245					250					255	
Arg	Ala	Ala	Thr	His	Asn	Lys	Gly	Val	Met	Asn	Gly	Ile	His	Ala	Val
			260					265					270		
Val	Leu	Ala	Thr	Gly	Asn	Asp	Thr	Arg	Gly	Ala	Glu	Ala	Ser	Ala	His
		275					280					285			

Ala Tyr Ala Ser Arg Asp Gly Gln Tyr Arg Gly Ile Ala Thr Trp Arg  
 290 295 300

Tyr Asp Gln Lys Arg Gln Arg Leu Ile Gly Thr Ile Glu Val Pro Met  
 305 310 315 320

Thr Leu Ala Ile Val Gly Gly Gly Thr Lys Val Leu Pro Ile Ala Lys  
 325 330 335

Ala Ser Leu Glu Leu Leu Asn Val Asp Ser Ala Gln Glu Leu Gly His  
 340 345 350

Val Val Ala Ala Val Gly Leu Ala Gln Asn Phe Ala Ala Cys Arg Ala  
 355 360 365

Leu Val Ser Glu Gly Ile Gln Gln Gly His Met Ser Leu Gln Tyr Lys  
 370 375 380

Ser Leu Ala Ile Val Val Gly Ala Lys Gly Asp Glu Ile Ala Gln Val  
 385 390 395 400

Ala Glu Ala Leu Lys Gln Glu Pro Arg Ala Asn Thr Gln Val Ala Glu  
 405 410 415

Arg Ile Leu Gln Glu Ile Arg Gln Gln  
 420 425

<210> 275  
 <211> 866  
 <212> PRT  
 <213> Ips paraconfusus

<400> 275

Met Val Ser Arg Leu Phe Leu Ala His Gly Glu Phe Cys Thr Asn His  
 1 5 10 15

Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Ala Cys Met Leu  
 20 25 30

Thr Val Glu Arg Gln Asn Pro Ile Pro Pro Thr Lys Pro Ile Thr Thr  
 35 40 45

Ser Cys Gln Gly Cys Ile Gln Glu Ala Glu Tyr Asn Ala Ala Asp Leu  
 50 55 60

Ile Ser Met Thr Ile Leu Arg Ser Leu Ala Val Leu Tyr Cys Tyr Tyr  
 65 70 75 80  
  
 Gln Phe Arg Lys Leu His Lys Leu Gly Ser Arg Tyr Ile Leu Gly Ile  
 85 90 95  
  
 Ala Glu Leu Phe Thr Val Phe Ser Ser Phe Ile Phe Thr Thr Thr Val  
 100 105 110  
  
 Leu Asn Leu Leu Arg Val Glu Val Ser Asp Leu Lys Asp Ala Leu Phe  
 115 120 125  
  
 Phe Phe Leu Leu Leu Ile Asp Leu Ser Lys Ala Gly Met Leu Ala Gln  
 130 135 140  
  
 Phe Ala Leu Thr Ser Gln Asn Glu Ile Glu Gly Lys Asn Asn Ile Ala  
 145 150 155 160  
  
 Lys Gly Leu Ala Glu Leu Gly Pro Thr Ile Thr Leu Asp Thr Val Val  
 165 170 175  
  
 Glu Thr Leu Val Ile Gly Val Gly Thr Leu Ser Gly Val Glu Arg Leu  
 180 185 190  
  
 Glu Met Leu Ser Trp Phe Ala Cys Leu Ser Val Leu Val Asn Tyr Val  
 195 200 205  
  
 Val Phe Met Ala Phe Tyr Pro Ala Cys Leu Ser Leu Ile Leu Glu Leu  
 210 215 220  
  
 Ser Arg Ser Thr Asn Phe Tyr Lys Thr Lys Asp Pro Trp Met Ile Phe  
 225 230 235 240  
  
 Ala Phe Lys Glu Glu Glu His Lys Ser Asn Pro Val Val Gln Arg Val  
 245 250 255  
  
 Lys Leu Ile Met Ser Val Gly Leu Met Ile Val His Val His Ser Arg  
 260 265 270  
  
 Trp Pro Phe Lys Asp Ser Glu Val Tyr Asn Ile Glu Pro Leu Val Gln  
 275 280 285  
  
 Gln Ser Phe Asn Asn Thr Glu Glu Ser Asn Ser Leu His Gly Tyr Phe  
 290 300  
  
 Glu Arg Trp Leu Ala Leu Gly Ala Asp His Ile Val Ile Leu Ile Leu



305		310		315		320
Ile Thr Ala Leu Leu Ile Lys Leu Leu Phe Phe Glu Ile Gln Asp Leu	325		330		335	
Thr Glu Ile Arg Asp Gln Glu Thr Gln Val Glu Pro Glu Lys Ser Glu	340		345		350	
Lys Ala Glu Asn Thr Glu Lys Glu Glu Leu Lys Val Val Gln Glu Val	355		360		365	
Arg Glu Asn Lys Arg Met Pro Met Phe Ser Leu Ser Glu Asp Asp Ser	370		375		380	
Cys Glu Thr Thr Phe Gln Asp Lys Glu Val Gln Thr Gln Thr Pro Tyr	385		390		395	400
Asn Ser Glu Ala His Ser Ser Ser Glu Asp Asp Ile Pro Lys Val Cys	405		410		415	
Lys Thr Leu Glu Asp Cys Leu Lys Ile Tyr Asn Asn Val Asp Met Gly	420		425		430	
Ala Thr Ala Leu Thr Asp Glu Glu Ile Ile Leu Leu Ile Lys Asn Arg	435		440		445	
His Ile Ala Gly Tyr Gln Ile Glu Lys Ala Val Asp Asn Pro Glu Arg	450		455		460	
Gly Val Gly Ile Arg Arg Lys Ile Leu Gly Arg Asp Leu Asp Ala Pro	465		470		475	480
Lys Val Leu Glu Gly Leu Pro Tyr Arg Asn Tyr Asp Tyr Ser Leu Val	485		490		495	
Met Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val	500		505		510	
Gly Tyr Ala Gly Pro Leu Val Leu Asp Gly Lys Glu Ile Tyr Val Pro	515		520		525	
Met Ala Thr Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys	530		535		540	
Arg Ala Leu Lys Glu Ala Gly Val Thr Ser Arg Ile Val Ala Asp Gly	545		550		555	560

Met Thr Arg Gly Pro Val Val Arg Phe Pro Ser Ile Ile Arg Ala Ser  
 565 570 575

Gln Ala Met Gln Trp Ile Gln Asp Asn Phe Asp Gly Ile Lys Glu Gln  
 580 585 590

Phe Asp Ser Ser Ser Arg Phe Ala Arg Leu Gln Arg Val Thr Met Lys  
 595 600 605

Ile Ala Gly Arg Leu Leu Phe Ile Arg Phe Val Ala Thr Thr Gly Asp  
 610 615 620

Ala Met Gly Met Asn Met Leu Ser Lys Gly Thr Glu Tyr Ser Leu Lys  
 625 630 635 640

Phe Val Gln Arg Ala Phe Glu Asp Met Glu Ile Leu Ser Leu Ser Gly  
 645 650 655

Asn Phe Cys Thr Asp Lys Lys Pro Ala Ala Val Asn Trp Ile Glu Gly  
 660 665 670

Arg Gly Lys Ser Val Val Cys Glu Ala Ile Val Pro Ala Lys Ile Val  
 675 680 685

Ala Asn Ile Leu Lys Thr Asn Val His Ala Leu Val Asp Val Asn Asn  
 690 695 700

Ser Lys Asn Met Val Gly Ser Ala Val Ala Gly Ser Ile Gly Gly Phe  
 705 710 715 720

Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile Phe Leu Ala Thr Gly  
 725 730 735

Gln Asp Pro Ala Gln Asn Val Gly Ser Ser Asn Cys Met Thr Leu Met  
 740 745 750

Glu Pro Trp Gly Pro Thr Gly Glu Asp Leu Tyr Ile Ser Cys Thr Met  
 755 760 765

Pro Ser Ile Glu Ile Gly Thr Ile Gly Gly Gly Thr Ile Leu Pro Pro  
 770 775 780

Gln Gly Thr Cys Leu Glu Met Leu Gly Val Arg Gly Ser Asn Ile Ala  
 785 790 795 800

Glu Pro Gly Ala Asn Ala Ser Gln Leu Ala Lys Ile Val Gly Ala Thr  
805 810 815

Val Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Leu Ala Ala Gly His  
820 825 830

Leu Val Arg Ser His Leu Arg His Asn Arg Ser Thr Thr Leu Leu Pro  
835 840 845

Asp Ala Phe Asp Lys Asn Lys Asn Ile Leu Val Pro Pro Cys Lys Asp  
850 855 860

Lys Val  
865

<210> 276  
<211> 353  
<212> PRT  
<213> Kitasatospora griseola  
  
<400> 276

Met Thr Glu Ala His Ala Thr Ala Gly Val Pro Met Arg Trp Val Gly  
1 5 10 15

Pro Val Arg Ile Ser Gly Asn Val Ala Thr Ile Glu Thr Gln Val Pro  
20 25 30

Leu Ala Thr Tyr Glu Ser Pro Leu Trp Pro Ser Val Gly Arg Gly Ala  
35 40 45

Lys Val Ser Arg Leu Thr Glu Lys Gly Ile Val Ala Thr Leu Val Asp  
50 55 60

Glu Arg Met Thr Arg Ser Val Leu Val Glu Ala Thr Asp Ala Leu Thr  
65 70 75 80

Ala Leu Ser Ala Ala Arg Thr Ile Glu Ala Arg Ile Asp Glu Leu Arg  
85 90 95

Glu Leu Val Arg Gly Cys Ser Arg Phe Ala Gln Leu Ile Gly Ile Arg  
100 105 110

His Glu Ile Thr Gly Asn Leu Leu Phe Val Arg Phe Glu Phe Ser Thr  
115 120 125

Gly Asp Ala Ser Gly His Asn Met Ala Thr Leu Ala Ser Asp Val Leu

130	135	140															
Leu	Gln	His	Leu	Leu	Glu	Thr	Val	Pro	Gly	Ile	Ser	Tyr	Gly	Ser	Ile		
145					150					155					160		
Ser	Gly	Asn	Tyr	Cys	Thr	Asp	Lys	Lys	Ala	Thr	Ala	Ile	Asn	Gly	Ile		
				165					170					175			
Leu	Gly	Arg	Gly	Lys	Asn	Val	Val	Thr	Glu	Leu	Leu	Val	Pro	Arg	Asp		
			180					185					190				
Val	Val	Ala	Asp	Val	Leu	Asn	Thr	Thr	Ala	Ala	Lys	Ile	Ala	Glu	Leu		
		195					200					205					
Asn	Leu	Arg	Lys	Asn	Leu	Leu	Gly	Thr	Leu	Leu	Ala	Gly	Gly	Ile	Arg		
	210					215					220						
Ser	Ala	Asn	Ala	His	Tyr	Ala	Asn	Met	Leu	Leu	Ala	Phe	Tyr	Leu	Ala		
225					230				235						240		
Thr	Gly	Gln	Asp	Ala	Ala	Asn	Ile	Val	Glu	Gly	Ser	Gln	Gly	Val	Val		
				245					250					255			
Thr	Ala	Glu	Asp	Arg	Asp	Gly	Asp	Leu	Tyr	Leu	Ala	Cys	Thr	Leu	Pro		
			260					265					270				
Asn	Leu	Ile	Val	Gly	Thr	Val	Gly	Asn	Gly	Lys	Gly	Leu	Gly	Phe	Val		
	275						280					285					
Glu	Thr	Asn	Leu	Asn	Arg	Leu	Gly	Cys	Arg	Ala	Asp	Arg	Glu	Pro	Gly		
	290					295					300						
Glu	Asn	Ala	Arg	Arg	Leu	Ala	Val	Ile	Ala	Ala	Ala	Thr	Val	Leu	Cys		
305					310				315						320		
Gly	Glu	Leu	Ser	Leu	Leu	Ala	Ala	Gln	Thr	Asn	Pro	Gly	Glu	Leu	Met		
				325				330						335			
Arg	Ala	His	Val	Gln	Leu	Glu	Arg	Gly	His	Thr	Thr	Ala	Lys	Ala	Gly		
			340					345					350				

Val

<210> 277

<211> 434

<212> PRT  
<213> Leishmania major

<400> 277

Met Arg Arg Ser Leu Leu Leu Ala Cys Ser Ala Ala Lys Gly Glu Ser  
1 5 10 15

Trp Ala Ser Met Ser Asp Thr Glu Ile Met Lys Gln Val Glu Asn Lys  
20 25 30

Lys Ile Ala Phe His Gly Leu Glu Gln Ala Leu Ala Pro Asp Tyr Asp  
35 40 45

Arg Ala Ile Ala Ile Arg Arg Glu Ile Val Lys Lys Lys Ile Cys Pro  
50 55 60

Ser Pro Ala Ala Thr His Pro Leu Glu Arg Val Pro Tyr Lys Asn Tyr  
65 70 75 80

Asp Trp Ser Ser Val Val Gly Gln Ser Cys Glu Asn Ile Leu Gly Tyr  
85 90 95

Val Pro Val Pro Val Gly Leu Ala Gly Pro Leu Leu Leu Asp Gly Lys  
100 105 110

Glu Val Ala Leu Pro Met Ala Thr Thr Glu Gly Ala Leu Val Ala Ser  
115 120 125

Ala His Arg Gly Ala Arg Ala Ile Asn Leu Ser Gly Gly Cys Arg Thr  
130 135 140

Ala Val Leu Lys Glu Gly Met Thr Arg Ala Pro Val Val Glu Val Asn  
145 150 155 160

Ser Phe Asp Glu Ala Ile Thr Val Ile Lys Phe Cys Glu Glu Arg Phe  
165 170 175

Asp Val Leu Arg Glu Ala Phe Glu Ser Thr Thr Arg Phe Gly Lys Leu  
180 185 190

Leu Ser Ile Lys Cys Ala Met Ala Gly Arg Gln Val His Leu Arg Phe  
195 200 205

Ser Ala Phe Thr Gly Asp Ala Met Gly Met Asn Met Ile Thr Lys Gly  
210 215 220

Cys Asp Lys Ala Leu Gln Val Leu Gln Gln His Ile Pro Ser Val Arg  
 225 230 235 240

Val Leu Thr Leu Ser Gly Asn Phe Cys Thr Asp Lys Lys Pro Ser Ala  
 245 250 255

Leu Asn Trp Val Glu Gly Arg Gly Lys Ser Val Val Ala Glu Ala Val  
 260 265 270

Ile Lys Arg Asp Val Val Glu Ser Val Leu Lys Cys Thr Val Asp Ser  
 275 280 285

Val Val Ser Leu Asn Val Thr Lys Asn Leu Arg Gly Ser Ala Leu Ala  
 290 295 300

Gly Ser Ile Gly Gly Phe Asn Ala His Ala Ala Asn Ile Val Ala Ala  
 305 310 315 320

Leu Tyr Ile Ala Thr Gly Gln Asp Pro Ala Gln Val Val Glu Ser Ala  
 325 330 335

Thr Cys Met Thr Thr Val Asp Lys Ala Gly Glu Asp Leu Val Ile Ser  
 340 345 350

Leu Met Met Pro Ser Ile Glu Val Gly Ala Val Gly Gly Gly Thr Gly  
 355 360 365

Leu Ser Ser Gln Arg Ala Met Leu Glu Leu Met Gly Cys Ala Gly Ser  
 370 375 380

Asn Lys Glu Asp Pro Gly Ala His Ser Arg Gln Ile Ala Arg Val Val  
 385 390 395 400

Ala Gly Ala Val Ile Cys Gly Glu Leu Ser Leu Leu Ser Gly Leu Ala  
 405 410 415

Ala Gly His Leu Leu Ser Ala His Met Lys Leu Asn Arg Lys Pro Pro  
 420 425 430

Thr Pro

<210> 278  
 <211> 247  
 <212> PRT  
 <213> Anthonomus grandis

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(247)  
 <223> X equals unknown

<400> 278

Glu Ala Met Gly Met Asn Met Ile Ser Lys Gly Thr Glu Lys Ser Leu  
 1 5 10 15

Ala Tyr Ile Lys Ser His Phe Glu Asp Met Glu Ile Leu Ser Leu Ser  
 20 25 30

Gly Asn Val Cys Thr Asp Lys Lys Pro Ser Ala Ile Asn Trp Ile Glu  
 35 40 45

Gly Arg Gly Lys Ser Val Val Cys Glu Ala Ile Val Pro Ala Asn Ile  
 50 55 60

Val His Ser Ile Leu Lys Thr Thr Thr His Ala Leu Val Asp Leu Asn  
 65 70 75 80

Ile Ser Lys Asn Met Val Gly Ser Ala Val Ser Ala Ala Ile Gly Gly  
 85 90 95

Phe Asn Ala His Ala Ala Asn Ile Val Thr Ala Ile Tyr Ile Ala Thr  
 100 105 110

Gly Gln Asp Val Ala Gln Asn Val Gly Ser Ser Asn Cys Ile Thr Leu  
 115 120 125

Met Glu Pro Cys Gly Asp Lys Gly Glu Asp Leu Leu Ile Ser Cys Thr  
 130 135 140

Met Pro Ser Val Glu Ile Gly Thr Val Gly Gly Gly Thr Val Leu Pro  
 145 150 155 160

Ala Gln Gly Ala Cys Leu Glu Met Leu Gly Val Lys Gly Ala His Ser  
 165 170 175

Glu Asn Pro Gly Asp Asn Ala Lys Gln Leu Ala Lys Ile Val Cys Gly  
 180 185 190

Ala Val Leu Ala Gly Glu Leu Ser Leu Met Ala Ala Leu Val Thr Gly  
 195 200 205

His Leu Val Lys Ser His Leu Arg Leu Asn Arg Ser Tyr Ser Glu Lys

210	215	220
Asp Ser Pro Phe Lys Lys Ser Val Gly Gly Ser Ser Xaa Met Ser Asn		
225	230	235 240
Ile Thr Gln Phe Gln Tyr Gly		
245		
<210> 279		
<211> 846		
<212> PRT		
<213> Dendroctonus jeffreyi		
<400> 279		
Met Ala Ser Arg Leu Phe Arg Val His Gly Glu Phe Cys Thr Asn His		
1	5	10 15
Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Ala Cys Met Leu		
	20	25 30
Thr Val Glu Gln Gln Pro Pro Leu Arg Pro Ile Lys Pro Thr Ile Lys		
	35	40 45
Ser Cys Leu Gly Cys Ile Gln Glu Ala Glu His Asn Ala Ala Asp Leu		
	50	55 60
Ile Ser Met Thr Ile Leu Arg Ser Leu Ala Val Leu Tyr Cys Tyr Tyr		
65	70	75 80
Gln Phe Arg Lys Met His Lys Leu Gly Ser Lys Tyr Val Leu Gly Ile		
	85	90 95
Ala Gly Leu Phe Thr Val Phe Ser Ser Leu Val Phe Thr Thr Thr Val		
	100	105 110
Leu Asn Ile Leu Arg Ile Lys Val Ser Asp Leu Lys Asp Ala Leu Phe		
	115	120 125
Phe Phe Leu Leu Leu Ile Asp Leu Ser Lys Ala Ala Ile Leu Ala Gln		
	130	135 140
Phe Ala Leu Asn Gly Ala Asn Gln Ala Glu Arg Lys Thr Asn Ile Ala		
145	150	155 160
Lys Gly Leu Ala Glu Leu Gly Pro Thr Ile Thr Leu Asp Thr Leu Val		
	165	170 175



Glu Thr Leu Val Ile Gly Val Gly Thr Met Ser Gly Val Ala Arg Leu  
180 185 190

Glu Met Leu Ser Trp Phe Ala Cys Leu Ser Val Leu Val Asn Tyr Ile  
195 200 205

Val Phe Met Thr Phe Tyr Pro Ala Cys Leu Ser Leu Ile Leu Glu Leu  
210 215 220

Ser Gln Ser Ser Asn Phe Cys Lys Thr Lys Asp Ser Trp Lys Ile Phe  
225 230 235 240

Ala Phe Lys Glu Asp Arg Lys Ser Asn Pro Val Leu Gln Arg Val Lys  
245 250 255

Leu Ile Met Ser Val Gly Leu Met Val Val His Val Gln Ser Arg Trp  
260 265 270

Pro Phe Arg Asp Ser Glu Val Tyr Thr Ile Glu Pro Leu Val Gln Gln  
275 280 285

Ser Phe Asn Lys Thr Asp Asp Ser Ile Ala Thr His Val Ser Phe Ile  
290 295 300

Arg Trp Leu Val Leu Gly Ala Asp His Ile Val Ile Ile Ile Leu Val  
305 310 315 320

Ser Ala Leu Leu Ile Lys Leu Ile Phe Phe Glu Ile Lys Asp Asn Leu  
325 330 335

Val Glu Ile Lys Pro Gly Phe Asp Lys Glu Thr Pro Lys Pro Thr Lys  
340 345 350

Gln Met Pro Met Ile Asn Phe Thr Leu Gly Glu Ser Cys Glu Ser Thr  
355 360 365

Tyr Glu Asp Lys Glu Val Gln Thr Leu Ala Thr Ser Asn Ser Asp Val  
370 375 380

Asp Ser Ser Ser Asp Asp Gly Val Pro Lys Gln Cys Arg Ser Leu Glu  
385 390 395 400

Asp Cys Val Lys Ile Phe Lys Asn Ile Asp Leu Gly Ala Thr Ala Leu  
405 410 415

Thr Asp Asp Glu Ile Ile Leu Leu Ile Lys Asn Lys Asn Ile Ala Ala  
420 425 430

Tyr Gln Ile Glu Lys Glu Val Asp Asp Pro Glu Arg Gly Val Gly Ile  
435 440 445

Arg Arg Lys Ile Leu Gly Arg Asp Leu Leu Glu Ser Pro Lys Leu Leu  
450 455 460

Glu Asn Leu Pro Phe Arg Asn Tyr Asp Tyr Ser Leu Val Met Gly Ala  
465 470 475 480

Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val Gly Tyr Ala  
485 490 495

Gly Pro Leu Leu Leu Asp Gly Arg Glu Leu Tyr Ile Pro Met Ala Thr  
500 505 510

Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Leu  
515 520 525

Lys Val Ser Gly Val Thr Ser Ser Val Val Ala Asp Gly Met Thr Arg  
530 535 540

Gly Pro Val Val Arg Phe Pro Ser Ile Val Arg Thr Ser Gln Ala Met  
545 550 555 560

Gln Trp Ile Gln Asp Pro Asp Asn Phe Lys Lys Ile Lys Glu Gln Phe  
565 570 575

Asp Ser Ser Ser Arg Phe Ala Arg Leu Gln Arg Leu Thr Leu Lys Ile  
580 585 590

Ala Gly Arg Phe Leu Phe Ile Arg Phe Ile Ala Thr Thr Gly Asp Ala  
595 600 605

Met Gly Met Asn Met Leu Ser Lys Gly Thr Glu Tyr Ser Leu Lys Leu  
610 615 620

Val Gln Gln Val Phe Tyr Asp Met Glu Ile Leu Ser Leu Ser Gly Asn  
625 630 635 640

Phe Cys Thr Asp Lys Lys Pro Ala Ala Ile Asn Trp Ile Glu Gly Arg  
645 650 655

Gly Lys Ser Val Val Cys Glu Ala Ile Val Pro Ala Lys Ile Ile Ser

660	665	670
Ser Ile Leu Lys Thr Asn Val His Ala Leu Val Asp Val Asn Asn Ile		
675	680	685
Gln Glu His Val Gly Ser Ala Val Ala Gly Ser Ile Gly Gly Phe Asn		
690	695	700
Ala His Ala Ala Asn Ile Val Thr Ala Ile Phe Leu Ala Thr Gly Gln		
705	710	715
Asp Pro Ala Gln Asn Val Ser Ser Ser Asn Cys Met Thr Leu Met Glu		
	725	730
Pro Trp Gly Pro Asp Gly Glu Asp Leu Tyr Ile Ser Cys Thr Met Pro		
	740	745
Ser Ile Glu Ile Gly Thr Ile Gly Gly Gly Thr Ile Leu Pro Ala Gln		
	755	760
Ser Ala Cys Leu Asp Ile Leu Gly Val Lys Gly Ser Asn Arg Glu Asn		
	770	775
Pro Gly Ala Asn Ala Cys Gln Leu Ala Lys Ile Val Cys Gly Thr Val		
	785	790
Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Leu Thr Ala Gly His Leu		
	805	810
Val Lys Ser His Leu Arg His Asn Arg Ser Thr Thr Leu Leu Pro Asp		
	820	825
Ala Phe Asp Arg Lys Lys Ile Ser Phe Thr Gln Leu Pro Arg		
	835	840

<210> 280

<211> 846

<212> PRT

<213> Dendroctonus jeffreyi

<400> 280

Met Ala Ser Arg Leu Phe Arg Val His Gly Glu Phe Cys Thr Asn His
1 5 10 15

Pro Trp Glu Val Ile Val Ala Thr Leu Thr Leu Thr Ala Cys Met Leu
20 25 30

Thr	Val	Glu	Gln	Gln	Pro	Pro	Leu	Arg	Pro	Ile	Lys	Pro	Thr	Ile	Lys	35	40	45	
Ser	Cys	Leu	Gly	Cys	Ile	Gln	Glu	Ala	Glu	His	Asn	Ala	Ala	Asp	Leu	50	55	60	
Ile	Ser	Met	Thr	Ile	Leu	Arg	Ser	Leu	Ala	Val	Leu	Tyr	Cys	Tyr	Tyr	65	70	75	80
Gln	Phe	Arg	Lys	Met	His	Lys	Leu	Gly	Ser	Lys	Tyr	Val	Leu	Gly	Ile	85	90	95	
Ala	Gly	Leu	Phe	Thr	Val	Phe	Ser	Ser	Leu	Val	Phe	Thr	Thr	Thr	Val	100	105	110	
Leu	Asn	Ile	Leu	Arg	Ile	Lys	Val	Ser	Asp	Leu	Lys	Asp	Ala	Leu	Phe	115	120	125	
Phe	Phe	Leu	Leu	Leu	Ile	Asp	Leu	Ser	Lys	Ala	Ala	Ile	Leu	Ala	Gln	130	135	140	
Phe	Ala	Leu	Asn	Gly	Ala	Asn	Gln	Ala	Glu	Arg	Lys	Thr	Asn	Ile	Ala	145	150	155	160
Lys	Gly	Leu	Ala	Glu	Leu	Gly	Pro	Thr	Ile	Thr	Leu	Asp	Thr	Leu	Val	165	170	175	
Glu	Thr	Leu	Val	Ile	Gly	Val	Gly	Thr	Met	Ser	Gly	Val	Ala	Arg	Leu	180	185	190	
Glu	Met	Leu	Ser	Trp	Phe	Ala	Cys	Leu	Ser	Val	Leu	Val	Asn	Tyr	Ile	195	200	205	
Val	Phe	Met	Thr	Phe	Tyr	Pro	Ala	Cys	Leu	Ser	Leu	Ile	Leu	Glu	Leu	210	215	220	
Ser	Gln	Ser	Ser	Asn	Phe	Cys	Lys	Thr	Lys	Asp	Ser	Trp	Lys	Ile	Phe	225	230	235	240
Ala	Phe	Lys	Glu	Asp	Arg	Lys	Ser	Asn	Pro	Val	Leu	Gln	Arg	Val	Lys	245	250	255	
Leu	Ile	Met	Ser	Val	Gly	Leu	Met	Val	Val	His	Val	Gln	Ser	Arg	Trp	260	265	270	

Pro Phe Arg Asp Ser Glu Val Tyr Thr Ile Glu Pro Leu Val Gln Gln  
 275 280 285

Ser Phe Asn Lys Thr Asp Asp Ser Ile Ala Thr His Val Ser Phe Ile  
 290 295 300

Arg Trp Leu Val Leu Gly Ala Asp His Ile Val Ile Ile Ile Leu Val  
 305 310 315 320

Ser Ala Leu Leu Ile Lys Leu Ile Phe Phe Glu Ile Lys Asp Asn Leu  
 325 330 335

Val Glu Ile Lys Pro Gly Phe Asp Lys Glu Thr Pro Lys Pro Thr Lys  
 340 345 350

Gln Met Pro Met Ile Asn Phe Thr Leu Gly Glu Ser Cys Glu Ser Thr  
 355 360 365

Tyr Glu Asp Lys Glu Val Gln Thr Leu Ala Thr Ser Asn Ser Asp Val  
 370 375 380

Asp Ser Ser Ser Asp Asp Gly Val Pro Lys Gln Cys Arg Ser Leu Glu  
 385 390 395 400

Asp Cys Val Lys Ile Phe Lys Asn Ile Asp Leu Gly Ala Thr Ala Leu  
 405 410 415

Thr Asp Asp Glu Ile Ile Leu Leu Ile Lys Asn Lys Asn Ile Ala Ala  
 420 425 430

Tyr Gln Ile Glu Lys Glu Val Asp Asp Pro Glu Arg Gly Val Gly Ile  
 435 440 445

Arg Arg Lys Ile Leu Gly Arg Asp Leu Leu Glu Ser Pro Lys Leu Leu  
 450 455 460

Glu Asn Leu Pro Phe Arg Asn Tyr Asp Tyr Ser Leu Val Met Gly Ala  
 465 470 475 480

Cys Cys Glu Asn Val Ile Gly Tyr Met Pro Ile Pro Val Gly Tyr Ala  
 485 490 495

Gly Pro Leu Leu Leu Asp Gly Arg Glu Leu Tyr Ile Pro Met Ala Thr  
 500 505 510

Thr Glu Gly Cys Leu Val Ala Ser Thr Asn Arg Gly Cys Arg Ala Leu

515					520					525					
Lys	Val	Ser	Gly	Val	Thr	Ser	Ser	Val	Val	Ala	Asp	Gly	Met	Thr	Arg
530						535					540				
Gly	Pro	Val	Val	Arg	Phe	Pro	Ser	Ile	Val	Arg	Thr	Ser	Gln	Ala	Met
545					550					555					560
Gln	Trp	Ile	Gln	Asp	Pro	Asp	Asn	Phe	Lys	Lys	Ile	Lys	Glu	Gln	Phe
				565					570					575	
Asp	Ser	Ser	Ser	Arg	Phe	Ala	Arg	Leu	Gln	Arg	Leu	Thr	Leu	Lys	Ile
			580					585					590		
Ala	Gly	Arg	Phe	Leu	Phe	Ile	Arg	Phe	Ile	Ala	Thr	Thr	Gly	Asp	Ala
		595					600					605			
Met	Gly	Met	Asn	Met	Leu	Ser	Lys	Gly	Thr	Glu	Tyr	Ser	Leu	Lys	Leu
	610					615					620				
Val	Gln	Gln	Val	Phe	Tyr	Asp	Met	Glu	Ile	Leu	Ser	Leu	Ser	Gly	Asn
625					630					635					640
Phe	Cys	Thr	Asp	Lys	Lys	Pro	Ala	Ala	Ile	Asn	Trp	Ile	Glu	Gly	Arg
				645					650					655	
Gly	Lys	Ser	Val	Val	Cys	Glu	Ala	Ile	Val	Pro	Ala	Lys	Ile	Ile	Ser
			660					665					670		
Ser	Ile	Leu	Lys	Thr	Asn	Val	His	Ala	Leu	Val	Asp	Val	Asn	Asn	Ile
		675					680					685			
Gln	Glu	His	Val	Gly	Ser	Ala	Val	Ala	Gly	Ser	Ile	Gly	Gly	Phe	Asn
	690					695					700				
Ala	His	Ala	Ala	Asn	Ile	Val	Thr	Ala	Ile	Phe	Leu	Ala	Thr	Gly	Gln
705					710					715					720
Asp	Pro	Ala	Gln	Asn	Val	Ser	Ser	Ser	Asn	Cys	Met	Thr	Leu	Met	Glu
				725					730					735	
Pro	Trp	Gly	Pro	Asp	Gly	Glu	Asp	Leu	Tyr	Ile	Ser	Cys	Thr	Met	Pro
			740					745					750		
Ser	Ile	Glu	Ile	Gly	Thr	Ile	Gly	Gly	Gly	Thr	Ile	Leu	Pro	Ala	Gln
		755					760					765			

Ser Ala Cys Leu Asp Ile Leu Gly Val Lys Gly Ser Asn Arg Glu Asn  
 770 775 780

Pro Gly Ala Asn Ala Cys Gln Leu Ala Lys Ile Val Cys Gly Thr Val  
 785 790 795 800

Leu Ala Gly Glu Leu Ser Leu Met Ser Ala Leu Thr Ala Gly His Leu  
 805 810 815

Val Lys Ser His Leu Arg His Asn Arg Ser Thr Thr Leu Leu Pro Asp  
 820 825 830

Ala Phe Asp Arg Lys Lys Ile Ser Phe Thr Gln Leu Pro Arg  
 835 840 845

<210> 281  
 <211> 976  
 <212> PRT  
 <213> Gibberella fujikuroi

<400> 281

Met Asp His Glu Gly Cys Gln Gly Gln His Pro Gln Gln Cys Cys Gln  
 1 5 10 15

Trp Val Ser Asn Ala Trp Ser Glu Phe Leu Asp Leu Leu Lys Asn Ala  
 20 25 30

Glu Thr Leu Asp Ile Val Ile Met Leu Leu Gly Tyr Ile Ala Met His  
 35 40 45

Leu Thr Phe Val Ser Leu Phe Leu Ser Met Arg Lys Met Gly Ser Lys  
 50 55 60

Phe Trp Leu Gly Ile Cys Thr Leu Phe Ser Ser Val Phe Ala Phe Leu  
 65 70 75 80

Phe Gly Leu Val Val Thr Thr Lys Leu Gly Val Pro Ile Ser Val Ile  
 85 90 95

Leu Leu Ser Glu Gly Leu Pro Phe Leu Val Val Thr Ile Gly Phe Glu  
 100 105 110

Lys Asn Ile Val Leu Thr Arg Ala Val Met Ser His Ala Ile Glu His  
 115 120 125

Arg Arg Ile Gln Ala Gln Asn Ser Lys Ser Gly Lys Arg Ser Pro Asp  
 130 135 140  
 Gly Ser Thr Gln Asn Met Ile Gln Tyr Ala Val Gln Ala Ala Ile Lys  
 145 150 155 160  
 Glu Lys Gly Phe Glu Ile Ile Arg Asp Tyr Ala Ile Glu Ile Val Ile  
 165 170 175  
 Leu Val Ile Gly Ala Ala Ser Gly Val Gln Gly Gly Leu Gln Gln Phe  
 180 185 190  
 Cys Phe Leu Ala Ala Trp Thr Leu Phe Phe Asp Phe Ile Leu Leu Phe  
 195 200 205  
 Thr Phe Tyr Thr Ala Ile Leu Ser Ile Lys Leu Arg Ser Thr Val Ser  
 210 215 220  
 Ser Val Met Ser Ile Cys Val Trp Pro Leu Arg Met Met Ala Ser Arg  
 225 230 235 240  
 Arg Val Ala Glu Asn Val Ala Lys Gly Asp Asp Glu Leu Asn Arg Val  
 245 250 255  
 Arg Gly Asp Ala Pro Leu Phe Gly Arg Lys Ser Ser Ser Ile Pro Lys  
 260 265 270  
 Phe Lys Val Leu Met Ile Leu Gly Phe Ile Phe Val Asn Ile Val Asn  
 275 280 285  
 Ile Cys Ser Ile Pro Phe Arg Asn Pro Ser Ser Met Ser Thr Ile Arg  
 290 295 300  
 Thr Trp Ala Ser Ser Leu Gly Gly Val Ile Ala Pro Leu Ser Val Asp  
 305 310 315 320  
 Pro Phe Lys Val Ala Ser Asn Gly Leu Asp Ala Ile Leu Pro Thr Ala  
 325 330 335  
 Lys Ser Asn Asn Arg Pro Thr Leu Val Thr Val Leu Thr Pro Ile Lys  
 340 345 350  
 Tyr Glu Leu Glu Tyr Pro Ser Ile His Tyr Ala Leu Gly Ser Ala Ala  
 355 360 365  
 Ser Asn Pro Ala Tyr Asn Asp Ala Phe His His His Phe Gln Gly Tyr



370	375	380															
Gly Val Gly Gly Arg Met Val Gly Gly Ile Leu Lys Ser Leu Glu Asp																	
385					390					395							400
Pro Val Leu Ser Lys Trp Ile Val Ile Ala Leu Ala Leu Ser Val Ala																	
				405					410								415
Leu Asn Gly Tyr Leu Phe Asn Val Ala Arg Trp Gly Ile Lys Asp Pro																	
			420					425									430
Asn Val Pro Glu His Asn Ile Asp Arg Asn Glu Leu Ala Arg Ala Arg																	
			435					440									445
Glu Phe Asn Asp Thr Gly Ser Ala Thr Leu Pro Leu Gly Glu Tyr Val																	
			450					455									460
Pro Pro Thr Pro Met Arg Thr Gln Pro Ser Thr Pro Ala Ile Thr Asp																	
			465					470									480
Asp Glu Ala Glu Gly Leu His Met Thr Lys Ala Arg Pro Ala Asn Leu																	
				485						490							495
Pro Asn Arg Ser Asn Glu Glu Leu Glu Lys Leu Leu Ser Glu Asn Ala																	
			500							505							510
Leu Arg Glu Met Thr Asp Glu Glu Val Ile Ser Leu Ser Met Arg Gly																	
			515							520							525
Lys Ile Pro Gly Tyr Ala Leu Glu Lys Thr Leu Gly Asp Phe Thr Arg																	
			530							535							540
Ala Val Lys Ile Arg Arg Ser Ile Ile Ala Arg Asn Lys Ala Ala Ala																	
			545							550							555
Asp Ile Thr His Ser Leu Asp Arg Ser Lys Leu Pro Tyr Glu Asn Tyr																	
				565						570							575
Asn Trp Glu Arg Phe Phe Gly Ala Cys Cys Glu Asn Val Ile Gly Tyr																	
			580							585							590
Met Pro Leu Pro Val Gly Val Ala Gly Pro Leu Val Ile Asp Gly Gln																	
			595							600							605
Ser Tyr Phe Ile Pro Met Ala Thr Thr Glu Gly Val Leu Val Ala Ser																	
			610							615							620

Ala Ser Arg Gly Cys Lys Ala Ile Asn Ser Gly Gly Gly Ala Ile Thr  
625 630 635 640

Val Leu Thr Ala Asp Gly Met Thr Arg Gly Pro Cys Val Ala Phe Glu  
645 650 655

Thr Leu Glu Arg Ala Gly Ala Ala Lys Leu Trp Leu Asp Ser Glu Ala  
660 665 670

Gly Gln Asp Met Met Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala  
675 680 685

Arg Leu Gln Ser Met Lys Thr Ala Leu Ala Gly Thr Asn Leu Tyr Ile  
690 695 700

Arg Phe Lys Thr Thr Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser  
705 710 715 720

Lys Gly Val Glu His Ala Leu Ser Val Met Ala Asn Asp Gly Gly Phe  
725 730 735

Asp Asp Met Gln Ile Ile Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys  
740 745 750

Lys Ala Ala Ala Leu Asn Trp Ile Asp Gly Arg Gly Lys Gly Val Val  
755 760 765

Ala Glu Ala Ile Ile Pro Gly Glu Val Val Arg Ser Val Leu Lys Ser  
770 775 780

Asp Val Asp Ser Leu Val Glu Leu Asn Val Ala Lys Asn Leu Ile Gly  
785 790 795 800

Ser Ala Met Ala Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn  
805 810 815

Ile Val Ala Ala Ile Phe Leu Ala Thr Gly Gln Asp Pro Ala Gln Val  
820 825 830

Val Glu Ser Ala Asn Cys Ile Thr Ile Met Lys Asn Leu Asn Gly Ala  
835 840 845

Leu Gln Ile Ser Val Ser Met Pro Ser Leu Glu Val Gly Thr Leu Gly  
850 855 860

Gly Gly Thr Ile Leu Glu Pro Gln Gly Ala Met Leu Asp Ile Leu Gly  
865 870 875 880

Val Arg Gly Ser His Pro Thr Asn Pro Gly Asp Asn Ala Arg Arg Leu  
885 890 895

Ala Arg Ile Ile Gly Ala Ala Val Leu Ala Gly Glu Leu Ser Leu Cys  
900 905 910

Ser Ala Leu Ala Ala Gly His Leu Val Arg Ala His Met Gln His Asn  
915 920 925

Arg Ser Ala Ala Pro Ser Arg Ser Thr Thr Pro Gly Ser Ser His Asp  
930 935 940

Ala Arg Leu Thr Gly His Asp Gln Cys Pro Arg Ala Leu Ser Val Asn  
945 950 955 960

Asn Val Asp Glu Arg Arg Arg Tyr Ser Glu Val Lys Ala Ile Asp Glu  
965 970 975

<210> 282

<211> 353

<212> PRT

<213> Streptomyces sp.

<400> 282

Met Thr Asp Thr His Ala Ile Ala Met Val Pro Met Lys Trp Val Gly  
1 5 10 15

Pro Leu Arg Ile Ser Gly Asn Val Ala Thr Thr Glu Thr His Val Pro  
20 25 30

Leu Ala Thr Tyr Glu Thr Pro Leu Trp Pro Ser Val Gly Arg Gly Ala  
35 40 45

Lys Val Ser Met Leu Ser Glu Arg Gly Ile Ala Ala Thr Leu Val Asp  
50 55 60

Glu Arg Met Thr Arg Ser Val Leu Val Glu Ala Thr Asp Ala Gln Thr  
65 70 75 80

Ala Tyr Thr Ala Ala Arg Ala Ile Glu Ala Arg Ile Glu Glu Leu Arg  
85 90 95

Ala Val Val Arg Thr Cys Ser Arg Phe Ala Glu Leu Leu Gln Val Arg

100					105					110					
His	Glu	Ile	Ala	Gly	Asn	Leu	Leu	Phe	Val	Arg	Phe	Glu	Phe	Ser	Thr
		115					120					125			
Arg	Arg	Pro	Ser	Gly	His	Asn	Met	Ala	Thr	Leu	Ala	Ser	Asp	Ala	Leu
	130					135					140				
Leu	Ala	His	Leu	Leu	Gln	Thr	Ile	Pro	Gly	Ile	Ser	Tyr	Gly	Ser	Ile
145						150					155				160
Ser	Gly	Asn	Tyr	Cys	Thr	Asp	Lys	Lys	Ala	Thr	Ala	Ile	Asn	Gly	Ile
				165					170					175	
Leu	Gly	Arg	Gly	Lys	Asn	Val	Val	Thr	Glu	Leu	Val	Val	Glu	Arg	Glu
			180					185					190		
Val	Val	Glu	Arg	Val	Leu	His	Thr	Thr	Ala	Ala	Lys	Ile	Val	Glu	Leu
		195					200					205			
Asn	Ile	Arg	Lys	Asn	Leu	Leu	Gly	Thr	Leu	Leu	Ala	Gly	Gly	Ile	Arg
	210					215					220				
Ser	Ala	Asn	Ala	His	Tyr	Ala	Asn	Met	Leu	Leu	Gly	Phe	Tyr	Leu	Ala
225						230					235				240
Thr	Gly	Gln	Asp	Ala	Ala	Asn	Ile	Val	Glu	Gly	Ser	Gln	Gly	Val	Thr
				245					250					255	
Leu	Ala	Glu	Asp	Arg	Asp	Gly	Asp	Leu	Tyr	Phe	Ser	Cys	Asn	Leu	Pro
			260					265					270		
Asn	Leu	Ile	Val	Gly	Thr	Val	Gly	Asn	Gly	Lys	Gly	Leu	Glu	Phe	Val
		275					280					285			
Glu	Thr	Asn	Leu	Asn	Arg	Leu	Gly	Cys	Arg	Glu	Asp	Arg	Ala	Pro	Gly
		290				295					300				
Glu	Asn	Ala	Arg	Arg	Leu	Ala	Val	Ile	Ala	Ala	Ala	Thr	Val	Leu	Cys
305						310					315				320
Gly	Glu	Leu	Ser	Leu	Leu	Ala	Ala	Gln	Thr	Asn	Pro	Gly	Glu	Leu	Met
				325					330					335	
Arg	Ala	His	Val	Glu	Leu	Glu	Arg	Asp	Asn	Thr	Thr	Ala	Glu	Val	Gly
			340					345					350		

Val

<210> 283  
<211> 353  
<212> PRT  
<213> Kitasatospora griseola

<400> 283

Met Thr Glu Ala His Ala Thr Ala Gly Val Pro Met Arg Trp Val Gly  
1 5 10 15

Pro Val Arg Ile Ser Gly Asn Val Ala Thr Ile Glu Thr Gln Val Pro  
20 25 30

Leu Ala Thr Tyr Glu Ser Pro Leu Trp Pro Ser Val Gly Arg Gly Ala  
35 40 45

Lys Val Ser Arg Leu Thr Glu Lys Gly Ile Val Ala Thr Leu Val Asp  
50 55 60

Glu Arg Met Thr Arg Ser Val Leu Val Glu Ala Thr Asp Ala Leu Thr  
65 70 75 80

Ala Leu Ser Ala Ala Arg Thr Ile Glu Ala Arg Ile Asp Glu Leu Arg  
85 90 95

Glu Leu Val Arg Gly Cys Ser Arg Phe Ala Gln Leu Ile Gly Ile Arg  
100 105 110

His Glu Ile Thr Gly Asn Leu Leu Phe Val Arg Phe Glu Phe Ser Thr  
115 120 125

Gly Asp Ala Ser Gly His Asn Met Ala Thr Leu Ala Ser Asp Val Leu  
130 135 140

Leu Gln His Leu Leu Glu Thr Val Pro Gly Ile Ser Tyr Gly Ser Ile  
145 150 155 160

Ser Gly Asn Tyr Cys Thr Asp Lys Lys Ala Thr Ala Ile Asn Gly Ile  
165 170 175

Leu Gly Arg Gly Lys Asn Val Val Thr Glu Leu Leu Val Pro Arg Asp  
180 185 190

Val Val Ala Asp Val Leu Asn Thr Thr Ala Ala Lys Ile Ala Glu Leu  
 195 200 205

Asn Leu Arg Lys Asn Leu Leu Gly Thr Leu Leu Ala Gly Gly Ile Arg  
 210 215 220

Ser Ala Asn Ala His Tyr Ala Asn Met Leu Leu Ala Phe Tyr Leu Ala  
 225 230 235 240

Thr Gly Gln Asp Ala Ala Asn Ile Val Glu Gly Ser Gln Gly Val Val  
 245 250 255

Thr Ala Glu Asp Arg Asp Gly Asp Leu Tyr Leu Ala Cys Thr Leu Pro  
 260 265 270

Asn Leu Ile Val Gly Thr Val Gly Asn Gly Lys Gly Leu Gly Phe Val  
 275 280 285

Glu Thr Asn Leu Asn Arg Leu Gly Cys Arg Ala Asp Arg Glu Pro Gly  
 290 295 300

Glu Asn Ala Arg Arg Leu Ala Val Ile Ala Ala Ala Thr Val Leu Cys  
 305 310 315 320

Gly Glu Leu Ser Leu Leu Ala Ala Gln Thr Asn Pro Gly Glu Leu Met  
 325 330 335

Arg Ala His Val Gln Leu Glu Arg Gly His Thr Thr Ala Lys Ala Gly  
 340 345 350

Val

<210> 284  
 <211> 480  
 <212> PRT  
 <213> Mus musculus

<400> 284

Glu Phe Arg Ala Gln Gln Arg Phe Ser Thr Ile Pro Pro Ala Pro Leu  
 1 5 10 15

Ala Lys Thr Asp Thr Trp Pro Lys Asp Val Gly Ile Leu Ala Leu Glu  
 20 25 30

Val Tyr Phe Pro Ala Gln Tyr Val Asp Gln Thr Asp Leu Glu Lys Phe  
 35 40 45

Asn Asn Val Glu Ala Gly Lys Tyr Thr Val Gly Leu Gly Gln Thr Arg  
 50 55 60

Met Gly Phe Cys Ser Val Gln Glu Asp Ile Asn Ser Leu Cys Leu Thr  
 65 70 75 80

Val Val Gln Arg Leu Met Glu Arg Thr Lys Leu Pro Trp Asp Ala Val  
 85 90 95

Gly Arg Leu Glu Val Gly Thr Glu Thr Ile Ile Asp Lys Ser Lys Ala  
 100 105 110

Val Lys Thr Val Leu Met Glu Leu Phe Gln Asp Ser Gly Asn Thr Asp  
 115 120 125

Ile Glu Gly Ile Asp Thr Thr Asn Ala Cys Tyr Gly Gly Thr Ala Ser  
 130 135 140

Leu Phe Asn Ala Ala Asn Trp Met Glu Ser Ser Tyr Trp Asp Gly Arg  
 145 150 155 160

Tyr Ala Leu Val Val Cys Gly Asp Ile Ala Val Tyr Pro Ser Gly Asn  
 165 170 175

Ala Arg Pro Thr Gly Gly Ala Gly Ala Val Ala Met Leu Ile Gly Pro  
 180 185 190

Lys Ala Pro Leu Val Leu Glu Gln Gly Leu Arg Gly Thr His Met Glu  
 195 200 205

Asn Ala Tyr Asp Phe Tyr Lys Pro Asn Leu Ala Ser Glu Tyr Pro Leu  
 210 215 220

Val Asp Gly Lys Leu Ser Ile Gln Cys Tyr Leu Arg Ala Leu Asp Arg  
 225 230 235 240

Cys Tyr Ala Ala Tyr Arg Lys Lys Ile Gln Asn Gln Trp Lys Gln Ala  
 245 250 255

Gly Asn Asn Gln Pro Phe Thr Leu Asp Asp Val Gln Tyr Met Ile Phe  
 260 265 270

His Thr Pro Phe Cys Lys Met Val Gln Lys Ser Leu Ala Arg Leu Met  
 275 280 285

Phe Asn Asp Phe Leu Ser Ser Ser Ser Asp Lys Gln Asn Asn Leu Tyr  
290 295 300

Lys Gly Leu Glu Ala Phe Arg Gly Leu Lys Leu Glu Glu Thr Tyr Thr  
305 310 315 320

Asn Lys Asp Val Asp Lys Ala Leu Leu Lys Ala Ser Leu Asp Met Phe  
325 330 335

Asn Gln Lys Thr Lys Ala Ser Leu Tyr Leu Ser Thr Asn Asn Gly Asn  
340 345 350

Met Tyr Thr Ser Ser Leu Tyr Gly Cys Leu Ala Ser Leu Leu Ser His  
355 360 365

His Ser Ala Gln Glu Leu Ala Gly Ser Arg Ile Gly Ala Phe Ser Tyr  
370 375 380

Gly Ser Gly Leu Ala Ala Ser Phe Phe Ser Phe Arg Val Ser Lys Asp  
385 390 395 400

Ala Ser Pro Gly Ser Pro Leu Glu Lys Leu Val Ser Ser Val Ser Asp  
405 410 415

Leu Pro Lys Arg Leu Asp Ser Arg Arg Arg Met Ser Pro Glu Glu Phe  
420 425 430

Thr Glu Ile Met Asn Gln Arg Glu Gln Phe Tyr His Lys Val Asn Phe  
435 440 445

Ser Pro Pro Gly Asp Thr Ser Asn Leu Phe Pro Gly Thr Trp Tyr Leu  
450 455 460

Glu Arg Val Asp Glu Met His Arg Arg Lys Tyr Ala Arg Cys Pro Val  
465 470 475 480

<210> 285

<211> 508

<212> PRT

<213> Sus scrofa

<400> 285

Met Gln Arg Leu Leu Thr Pro Val Arg Gln Val Leu Arg Val Lys Arg  
1 5 10 15

Ala Met Gln Glu Ala Ser Phe Met Pro Pro Leu Leu Pro Pro Ala Ala



20					25					30					
His	Gln	Arg	Phe	Ser	Thr	Val	Pro	Ala	Val	Pro	Val	Ala	Lys	Ala	Asp
	35						40					45			
Thr	Trp	Pro	Lys	Asp	Val	Gly	Ile	Leu	Ala	Leu	Glu	Val	Tyr	Phe	Pro
	50					55					60				
Ala	Gln	Tyr	Val	Asp	Gln	Thr	Asp	Leu	Glu	Lys	Phe	Asp	Asn	Val	Glu
65					70					75					80
Ala	Gly	Arg	Tyr	Thr	Val	Gly	Leu	Gly	Gln	Thr	His	Met	Gly	Phe	Cys
				85					90					95	
Ser	Val	Gln	Glu	Asp	Ile	Asn	Ser	Leu	Cys	Leu	Thr	Val	Val	Gln	Arg
		100						105					110		
Leu	Met	Glu	Arg	Thr	Gln	Leu	Pro	Trp	Asp	Ser	Val	Gly	Trp	Leu	Glu
	115						120					125			
Val	Gly	Thr	Glu	Thr	Ile	Ile	Asp	Lys	Ser	Lys	Ser	Val	Lys	Thr	Val
	130					135					140				
Leu	Met	Glu	Leu	Phe	Gln	Asp	Ser	Gly	Asn	Thr	Asp	Ile	Glu	Gly	Ile
145					150					155					160
Asp	Thr	Thr	Asn	Ala	Cys	Tyr	Gly	Gly	Thr	Ala	Ser	Leu	Phe	Asn	Ala
				165					170					175	
Ala	Asn	Trp	Val	Glu	Ser	Ser	Ala	Trp	Asp	Gly	Arg	Tyr	Ala	Val	Val
		180						185					190		
Val	Cys	Gly	Asp	Ile	Ala	Val	Tyr	Pro	Arg	Gly	Asn	Ser	Arg	Pro	Thr
	195						200					205			
Gly	Gly	Ala	Gly	Ala	Val	Ala	Met	Leu	Val	Gly	Pro	Glu	Ala	Pro	Leu
	210					215					220				
Ala	Leu	Glu	Arg	Gly	Leu	Arg	Gly	Thr	His	Met	Glu	Asn	Ala	Tyr	Asp
225					230					235					240
Phe	Tyr	Lys	Pro	Asn	Ala	Thr	Ser	Glu	Tyr	Pro	Leu	Val	Asp	Gly	Lys
				245					250					255	
Leu	Ser	Ile	Gln	Cys	Tyr	Leu	Arg	Ala	Leu	Asp	Arg	Cys	Tyr	Thr	Leu
			260					265					270		

Tyr Arg Gln Lys Ile Glu Lys Gln Trp Lys Gln Ala Gly Ile Glu Arg  
275 280 285

His Phe Thr Leu Asp Asp Leu Gln Phe Met Ile Phe His Thr Pro Phe  
290 295 300

Cys Lys Leu Val Gln Lys Ser Leu Ala Arg Leu Met Phe Ser Asp Phe  
305 310 315 320

Leu Leu Ala Asp Ser Asp Thr Gln Ser Ser Leu Tyr Lys Gly Leu Glu  
325 330 335

Ala Phe Arg Gly Gln Lys Leu Glu Asp Thr Tyr Ala Asn Lys Asp Ile  
340 345 350

Glu Lys Ala Phe Gln Lys Ala Ser Leu Asp Leu Phe Asn Lys Lys Thr  
355 360 365

Lys Pro Ser Leu Tyr Leu Ser Leu His Asn Gly Asn Met Tyr Thr Ser  
370 375 380

Ser Leu Tyr Gly Cys Leu Ala Ser Leu Leu Ser Gln Cys Ser Ala Gln  
385 390 395 400

Asp Leu Ala Gly Ser Arg Ile Gly Ala Phe Ser Tyr Gly Ser Gly Leu  
405 410 415

Ala Ala Ser Phe Tyr Ser Leu Arg Val Ser Gln Asp Ala Ser Pro Gly  
420 425 430

Ser Pro Leu Glu Lys Leu Val Ser Ser Val Ser Asp Leu Pro Glu Arg  
435 440 445

Leu Ala Ser Arg Lys Arg Val Ser Pro Glu Glu Phe Thr Glu Ile Met  
450 455 460

Asn Gln Arg Glu Gln Tyr Tyr His Lys Val Asn Phe Thr Pro Pro Gly  
465 470 475 480

Asp Pro Asn Ser Leu Phe Pro Gly Thr Trp Tyr Leu Glu Arg Val Asp  
485 490 495

Glu Leu Tyr Arg Arg Lys Tyr Ala Arg His Leu Val  
500 505

<210> 286  
 <211> 409  
 <212> PRT  
 <213> Sulfolobus solfataricus

<400> 286

Met Lys Ile Asp Glu Val Val Glu Lys Leu Val Lys Gly Glu Ile Ser  
 1 5 10 15

Phe His Glu Val Asp Asn Leu Leu Glu Ala Asn Ala Ala Met Val Ala  
 20 25 30

Arg Arg Leu Ala Leu Glu Lys Ile Val Gly Val Gly Leu Pro Ser Ile  
 35 40 45

Gly Ser Thr Val Ile Asp Tyr Ser Glu Ile Lys Asn Lys Asn Ala Glu  
 50 55 60

Asn Val Ile Gly Ala Ile Gln Ile Pro Leu Gly Ile Val Gly Pro Ile  
 65 70 75 80

Arg Val Asn Gly Asp Tyr Ala Lys Gly Asp Phe Tyr Val Pro Met Ala  
 85 90 95

Thr Thr Glu Gly Ala Leu Ile Ala Ser Val Asn Arg Gly Ile Lys Ala  
 100 105 110

Val Thr Leu Ser Gly Gly Val Arg Ala Lys Val Leu Lys Asp Glu Met  
 115 120 125

Thr Arg Ala Pro Val Phe Lys Phe Asp Ser Ile Glu Gln Ile Pro Asn  
 130 135 140

Phe Leu Lys Phe Ile Glu Glu Asn Leu Glu Lys Ile Arg Asn Ile Ala  
 145 150 155 160

Asn Ser Thr Ser His His Gly Lys Leu Lys Ser Ile Thr Pro Phe Val  
 165 170 175

Leu Gly Asn Asn Val Trp Leu Arg Phe Ser Phe Glu Thr Gly Asp Ala  
 180 185 190

Met Gly Met Asn Met Val Thr Ile Ala Val Glu Lys Val Cys Glu Phe  
 195 200 205

Ile Glu Glu Asn Phe Pro Ser Ala Asp Cys Leu Ala Val Ser Gly Asn

210	215	220
Met Cys Ser Asp Lys Lys Gln Thr Asn Val Asn Ser Leu Phe Gly Arg 225 230 235 240		
Gly Lys Thr Val Val Ala Glu Ala Leu Ile Lys Lys Asp Val Ile Arg 245 250 255		
Asn Ile Leu His Ser Asn Ala Gln Leu Ile His Asp Ile Asn Leu Arg 260 265 270		
Lys Asn Trp Leu Gly Thr Ala Arg Ala Gly Ser Leu Ser Gln Phe Asn 275 280 285		
Ala His Phe Ala Asn Ile Val Thr Ala Ile Phe Ile Ala Thr Gly Gln 290 295 300		
Asp Val Ala Gln Ile Val Glu Ser Ser Ser Gly Tyr Thr Trp Thr Glu 305 310 315 320		
Val Arg Gly Glu Asp Leu Tyr Ile Ser Val Thr Leu Pro Ser Leu Glu 325 330 335		
Val Gly Thr Val Gly Gly Gly Thr Arg Leu Pro Thr Gln Lys Glu Ala 340 345 350		
Leu Ser Ile Met Gly Val Tyr Gly Ser Gly Asn Pro Pro Gly Ser Asn 355 360 365		
Ala Lys Lys Leu Ala Glu Ile Ile Ala Ser Thr Val Leu Ser Gly Glu 370 375 380		
Leu Asn Leu Leu Ala Ala Leu Ser Asn Lys Glu Leu Gly Lys Ala His 385 390 395 400		
Ala Lys Leu Gly Arg Ala Met Lys Val 405		

<210> 287  
 <211> 1053  
 <212> PRT  
 <213> Schizosaccharomyces pombe

<400> 287

Met Ile Tyr Lys Leu Ala Ala Arg Tyr Pro Ile Gln Val Ile Ala Ile 1 5 10 15
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Val Gly Ile Leu Val Ser Met Ala Tyr Phe Ser Phe Leu Glu Ala Leu  
 20 25 30  
 Thr Gln Glu Asp Phe Pro Val Leu Ile Arg Ala Leu Lys Arg Phe Gly  
 35 40 45  
 Ile Leu Asp Gly Phe Pro Asn Thr Arg Leu Pro Asn Glu Met Ile Leu  
 50 55 60  
 Lys Leu Ser Ser Val Gln Gly Glu Asp Ala Ser Val Trp Glu Gln Ile  
 65 70 75 80  
 Pro Ala Ala Glu Leu Gly Gly Glu Gly Phe Val Asp Phe Asp Ile Thr  
 85 90 95  
 Gln Trp Tyr Tyr Pro Ala Asn Ala Lys Val Asp Val Ala Gln Leu Val  
 100 105 110  
 Glu Pro Tyr Arg Asn Asp Cys Ile Phe His Asp Ala Ser Gly Ala Cys  
 115 120 125  
 His Phe Phe Phe Lys Glu Val Gly Asn Trp Thr Val Ser Ser Ile Ala  
 130 135 140  
 Leu Pro Ser Asn Leu Ala Asn Pro Pro Ile Asp Tyr Phe Leu Asp Ser  
 145 150 155 160  
 Ser Ser Thr Val Ile Gln Arg Ile Leu Pro Ala Ile Arg Glu His Gly  
 165 170 175  
 Ile Ser Trp Ser Trp Leu Leu Gln Leu Ile Ala Arg Thr Trp Met Asn  
 180 185 190  
 Thr Leu Lys Ile Ala Ser Gln Ala Ser Lys Thr Glu Leu Leu Ile Val  
 195 200 205  
 Gly Thr Ala Tyr Ala Cys Met Leu Ile Ser Ile Val Ser Leu Tyr Leu  
 210 215 220  
 Lys Met Arg Arg Leu Gly Ser Lys Phe Trp Leu Phe Phe Ser Val Leu  
 225 230 235 240  
 Leu Ser Thr Leu Phe Ser Val Gln Phe Ala Met Thr Leu Val Arg Ala  
 245 250 255

Ser Gly Val Arg Ile Ser Leu Val Ser Leu Ile Glu Ser Leu Pro Phe  
 260 265 270  
 Leu Ile Asn Val Val Ala Leu Asp Lys Ala Ala Glu Leu Thr Arg Gln  
 275 280 285  
 Val Ile Thr Arg Cys Ser Val Ser Asp Ser His Ser Pro Met His Glu  
 290 295 300  
 Asp Ile Ala Lys Ala Cys Arg Asn Ala Ala Pro Pro Ile Leu Arg His  
 305 310 315 320  
 Phe Ser Phe Gly Ile Val Val Leu Ala Ile Phe Ser Tyr Cys Asn Phe  
 325 330 335  
 Gly Ile Lys Gln Phe Phe Leu Phe Ala Ala Val Met Ile Tyr Asp Leu  
 340 345 350  
 Leu Leu Leu Phe Ser Phe Phe Val Ala Ile Leu Thr Leu Lys Leu Glu  
 355 360 365  
 Met Arg Arg Tyr Asn Ala Lys Asp Asp Val Arg Lys Val Leu Ile Glu  
 370 375 380  
 Glu Gly Leu Ser Glu Ser Thr Ala Arg His Val Ala Asp Gly Asn Asp  
 385 390 395 400  
 Ser Ser Ala Thr Thr Ser Ala Gly Ser Arg Tyr Phe Lys Val Arg Tyr  
 405 410 415  
 Gly Thr Lys Ile Ile Leu Phe Ile Phe Ile Ala Phe Asn Leu Phe Glu  
 420 425 430  
 Leu Cys Ser Ile Pro Phe Lys His Tyr Ala Ala Thr Ser Ala Ala Ala  
 435 440 445  
 Ala Arg Leu Ile Pro Leu Val Arg Ser Gln Tyr Pro Asp Phe Lys Ser  
 450 455 460  
 Gln Arg Leu Leu Asp Asp Gly Val Phe Asp Asp Val Leu Ser Ala Ile  
 465 470 475 480  
 Ser Ser Met Ser Asn Ile Glu Ser Pro Ser Val Arg Leu Leu Pro Ala  
 485 490 495  
 Val Phe Tyr Gly Ala Glu Leu Ser Ser Thr Ser Phe Leu Ser Thr Ile

500					505					510					
His	Ser	Phe	Ile	Asn	Asn	Trp	Ser	His	Tyr	Ile	Ser	Ala	Ser	Phe	Leu
		515					520					525			
Ser	Lys	Trp	Ile	Val	Cys	Ala	Leu	Ser	Leu	Ser	Ile	Ala	Val	Asn	Val
	530					535					540				
Phe	Leu	Leu	Asn	Ala	Ala	Arg	Leu	Asn	Ser	Ile	Lys	Glu	Glu	Pro	Glu
545						550					555				560
Lys	Lys	Val	Val	Glu	Lys	Val	Val	Glu	Val	Val	Lys	Tyr	Ile	Pro	Ser
				565					570					575	
Ser	Asn	Ser	Ser	Ser	Ile	Asp	Asp	Ile	Gln	Lys	Asp	Glu	Ile	Ala	Gln
			580					585					590		
Glu	Ser	Val	Val	Arg	Ser	Leu	Glu	Glu	Cys	Ile	Thr	Leu	Tyr	Asn	Asn
		595					600					605			
Gly	Gln	Ile	Ser	Thr	Leu	Asn	Asp	Glu	Glu	Val	Val	Gln	Leu	Thr	Leu
	610					615					620				
Ala	Lys	Lys	Ile	Pro	Leu	Tyr	Ala	Leu	Glu	Arg	Val	Leu	Lys	Asp	Val
625						630					635				640
Thr	Arg	Ala	Val	Val	Ile	Arg	Arg	Thr	Val	Val	Ser	Arg	Ser	Ser	Arg
				645					650					655	
Thr	Lys	Thr	Leu	Glu	Ser	Ser	Asn	Cys	Pro	Val	Tyr	His	Tyr	Asp	Tyr
			660					665					670		
Ser	Arg	Val	Leu	Asn	Ala	Cys	Cys	Glu	Asn	Val	Ile	Gly	Tyr	Met	Pro
		675					680					685			
Leu	Pro	Leu	Gly	Val	Ala	Gly	Pro	Leu	Ile	Ile	Asp	Gly	Lys	Pro	Phe
	690					695					700				
Tyr	Ile	Pro	Met	Ala	Thr	Thr	Glu	Gly	Ala	Leu	Val	Ala	Ser	Thr	Met
705						710					715				720
Arg	Gly	Cys	Lys	Ala	Ile	Asn	Ala	Gly	Gly	Gly	Ala	Val	Thr	Val	Leu
				725					730					735	
Thr	Arg	Asp	Gln	Met	Ser	Arg	Gly	Pro	Cys	Val	Ala	Phe	Pro	Asn	Leu
			740					745					750		

Thr Arg Ala Gly Arg Ala Lys Ile Trp Leu Asp Ser Pro Glu Gly Gln  
755 760 765

Glu Val Met Lys Lys Ala Phe Asn Ser Thr Ser Arg Phe Ala Arg Leu  
770 775 780

Gln His Ile Lys Thr Ala Leu Ala Gly Thr Arg Leu Phe Ile Arg Phe  
785 790 795 800

Cys Thr Ser Thr Gly Asp Ala Met Gly Met Asn Met Ile Ser Lys Gly  
805 810 815

Val Glu His Ala Leu Val Val Met Ser Asn Asp Ala Gly Phe Asp Asp  
820 825 830

Met Gln Val Ile Ser Val Ser Gly Asn Tyr Cys Thr Asp Lys Lys Pro  
835 840 845

Ala Ala Ile Asn Trp Ile Asp Gly Arg Gly Lys Ser Val Ile Ala Glu  
850 855 860

Ala Ile Ile Pro Gly Asp Ala Val Lys Ser Val Leu Lys Thr Thr Val  
865 870 875 880

Glu Asp Leu Val Lys Leu Asn Val Asp Lys Asn Leu Ile Gly Ser Ala  
885 890 895

Met Ala Gly Ser Val Gly Gly Phe Asn Ala His Ala Ala Asn Ile Val  
900 905 910

Thr Ala Val Tyr Leu Ala Thr Gly Gln Asp Pro Ala Gln Asn Val Glu  
915 920 925

Ser Ser Asn Cys Ile Thr Leu Met Asp Asn Val Asp Gly Asn Leu Gln  
930 935 940

Leu Ser Val Ser Met Pro Ser Ile Glu Val Gly Thr Ile Gly Gly Gly  
945 950 955 960

Thr Val Leu Glu Pro Gln Gly Ala Met Leu Asp Leu Leu Gly Val Arg  
965 970 975

Gly Ala His Met Thr Ser Pro Gly Asp Asn Ser Arg Gln Leu Ala Arg  
980 985 990



Val Val Ala Ala Ala Val Met Ala Gly Glu Leu Ser Leu Cys Ser Ala  
 995 1000 1005

Leu Ala Ser Gly His Leu Val Lys Ser His Ile Gly Leu Asn Arg  
 1010 1015 1020

Ser Ala Leu Asn Thr Pro Ala Met Asp Ser Ser Ala Lys Lys Pro  
 1025 1030 1035

Ala Thr Asp Ala Leu Lys Ser Val Asn Ser Arg Val Pro Gly Arg  
 1040 1045 1050

<210> 288

<211> 888

<212> PRT

<213> Oryctolagus cuniculus

<400> 288

Met Leu Ser Arg Leu Phe Arg Met His Gly Leu Phe Val Ala Ser His  
 1 5 10 15

Pro Trp Glu Val Ile Val Gly Thr Val Thr Leu Thr Ile Cys Met Met  
 20 25 30

Ser Met Asn Met Phe Thr Gly Asn Asp Lys Ile Cys Gly Trp Asn Tyr  
 35 40 45

Glu Cys Pro Lys Phe Glu Glu Asp Val Leu Ser Ser Asp Ile Ile Ile  
 50 55 60

Leu Thr Ile Thr Arg Cys Ile Ala Ile Leu Tyr Ile Tyr Phe Gln Phe  
 65 70 75 80

Gln Asn Leu Arg Gln Leu Gly Ser Lys Tyr Ile Leu Gly Ile Ala Gly  
 85 90 95

Leu Phe Thr Ile Phe Ser Ser Phe Val Phe Ser Thr Val Val Ile His  
 100 105 110

Phe Leu Asp Lys Glu Leu Thr Gly Leu Asn Glu Ala Leu Pro Phe Phe  
 115 120 125

Leu Leu Leu Ile Asp Leu Ser Arg Ala Ser Ala Leu Ala Lys Phe Ala  
 130 135 140

Leu Ser Ser Asn Ser Gln Asp Glu Val Arg Glu Asn Ile Ala Arg Gly

145		150		155		160									
Met	Ala	Ile	Leu	Gly	Pro	Thr	Phe	Thr	Leu	Asp	Ala	Leu	Val	Glu	Cys
				165					170					175	
Leu	Val	Ile	Gly	Val	Gly	Thr	Met	Ser	Gly	Val	Arg	Gln	Leu	Glu	Ile
			180					185					190		
Met	Cys	Cys	Phe	Gly	Cys	Met	Ser	Val	Leu	Ala	Asn	Tyr	Phe	Val	Phe
		195					200					205			
Met	Thr	Phe	Phe	Pro	Ala	Cys	Val	Ser	Leu	Val	Leu	Glu	Leu	Ser	Arg
	210					215					220				
Glu	Ser	Arg	Glu	Gly	Arg	Pro	Ile	Trp	Gln	Leu	Ser	His	Phe	Ala	Arg
225					230					235					240
Val	Leu	Glu	Glu	Glu	Glu	Asn	Lys	Pro	Asn	Pro	Val	Thr	Gln	Arg	Val
				245					250					255	
Lys	Met	Ile	Met	Ser	Leu	Gly	Leu	Val	Leu	Val	His	Ala	His	Ser	Arg
			260					265					270		
Trp	Ile	Ala	Asp	Pro	Ser	Pro	Gln	Asn	Ser	Thr	Ala	Asp	Asn	Ser	Lys
		275					280					285			
Val	Ser	Leu	Gly	Leu	Asp	Glu	Asn	Val	Ser	Lys	Arg	Ile	Glu	Pro	Ser
	290					295					300				
Val	Ser	Leu	Trp	Gln	Phe	Tyr	Leu	Ser	Lys	Met	Ile	Ser	Met	Asp	Ile
305					310					315					320
Glu	Gln	Val	Ile	Thr	Leu	Ser	Leu	Ala	Leu	Leu	Leu	Ala	Val	Lys	Tyr
				325					330					335	
Ile	Phe	Phe	Glu	Gln	Ala	Glu	Thr	Glu	Ser	Thr	Leu	Ser	Leu	Lys	Asn
			340					345					350		
Pro	Ile	Thr	Ser	Pro	Val	Val	Thr	Gln	Lys	Lys	Val	Pro	Asp	Ser	Cys
		355					360					365			
Cys	Arg	Arg	Glu	Pro	Val	Val	Val	Arg	Asn	Asn	Gln	Lys	Phe	Cys	Ser
	370					375					380				
Val	Glu	Glu	Glu	Ala	Gly	Met	Ser	Gln	Asp	Arg	Lys	Val	Glu	Val	Ile
385					390				395						400